

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Several technical studies were prepared for this EIS/EIR. They are as follows:

Air Quality, Geier & Geier Associates; June, 1999.
Biology, Helix Environmental Planning, Inc.; March, 1999.
Biology-Addendum, Helix Environmental Planning, Inc.; February, 2000
Biology-Addendum, Helix Environmental Planning, Inc.; March 2000
Cultural Resources, Gallegos & Associates; February, 1999.
Noise, Geier & Geier Associates; May, 1999.
Socioeconomic, Helix Environmental; June, 1999.
Draft Relocation Impact Study, CIC Research, Inc.; March, 1999.
Visual, KTU+A; June, 1999.
Hazardous Materials, Ninyo and Moore; April, 1999.
Location Hydraulic Study, Caltrans; March, 1999.
Geotechnical, Ninyo and Moore; February, 1999.
Hydrology, Sutherlin Consulting Service; April, 1999.
Transportation, Urban Systems Associates, Inc.; June, 1999.
Water Quality/Erosion, Helix Environmental Planning, Inc.; February, 1999.
Paleontology, San Diego Natural History Museum; February, 1999.
Major Investment Study, Helix Environmental Planning, Inc.; June, 1999

All of these study reports are available for review at the Caltrans District 11 Office, 2829 Juan Street, San Diego, California 92110; San Diego City Otay Mesa Branch Library, 3003 Coronado Avenue, San Diego, California 92154, and the San Ysidro Branch Library, 101 West San Ysidro Boulevard, San Diego, California 92173. They are incorporated by reference into this EIS/EIR.

The analysis of environmental impacts and proposed mitigation measures presented in the following sections of this document are based on preliminary project design and current environmental information and circumstances. The EIS/EIR draws from the studies for information and incorporates information, which may be more current than that contained in the final study reports. Final design of the selected project alignment alternative may cause proposed mitigation measures to be revised. Such changes in the project, or its circumstances, or development of new information may require additional evaluation.

4.1 GEOLOGIC HAZARDS

The most notable geotechnical hazards which have the potential for affecting any of the build alignment alternatives include surface rupture at potentially active fault crossings, strong ground motion generated from onsite and nearby active and potentially active faults, and slope instabilities. Somewhat less important conditions, which the project would need to address during design include expansive soils, corrosive soils, erosion, and soil settlement. Geotechnical hazards are nearly identical between the build alignment alternatives. The most notable differences between the alignment alternatives are that more extensive design measures may be required under the Tollway Alignment Alternatives since structures (tollbooths, utility structure,

administrative building, etc.) are more sensitive to subsurface soil movement than roadway surfaces or embankments.

Potential surface rupture from movement along splays of the La Nacion fault is a higher concern for the South Alignment Alternative, since two fault splays have been mapped adjacent to, and crossing this alignment alternative. All six-alignment alternatives would cross over the undocumented fills adjacent to Heritage Road, however, the North Alignment Alternative has a larger area underlain by undocumented fill. The Central and South Alignment Alternatives cross over documented fill at Heritage Road, which appears to be exhibiting signs of settlement as evidenced by longitudinal cracking of the existing paved roadway surface. The North Alignment Alternative bypasses this area. Potentially compressible soils (documented and undocumented fill) is a consideration for all alignment alternatives in this area, as well as at the “Tripp Landfill.”

The presence of adverse geotechnical conditions with the potential for affecting the project does not preclude the construction of any of the alignment alternatives. Standard design measures (the use of Caltrans Standard Specifications), and the use of other relevant construction practices and codes, would eliminate or reduce the effects of these potential hazards. A detailed geotechnical evaluation, consisting of subsurface exploration, laboratory testing, and engineering analyses, would be performed during the design phase of the project, so that appropriate geotechnical design parameters and measures can be formulated. The potential impact of strong ground motions on proposed structures can be mitigated through enhanced reinforcement, increased concrete strength, seismic damping members, etc. Slopes with the potential for failure from both static and seismic forces can be reduced in height and/or inclination, or stabilized through the construction of buttresses, walls, etc. Surficial slope instabilities and slope erosion can be reduced by constructing terrace drains and brow ditches and by planting deep- and shallow-rooted, drought tolerant vegetation. Expansive and compressible soils, which have a potential for impacting the proposed improvements may be removed or possibly mitigated through the construction of deep and/or specially reinforced foundations. Corrosive soils may be mitigated by removing the corrosive soils or by using materials insensitive to corrosive conditions, such as plastic.

4.2 PALEONTOLOGY

Portions of the Study Corridor are underlain with geologic deposits that contain high-sensitivity paleontological resources. These resources include the San Diego Formation and the Otay Formation. The San Diego Formation is confined to canyon and mesa slopes within the West Segment of the Study Corridor and to slopes within Spring Canyon in the Middle Segment. The Otay Formation is exposed in the West Segment of the Study Corridor below outcrops of the San Diego Formation. These resources are known to include diverse and well-preserved fossil assemblages of marine vertebrates and invertebrates in the Pliocene-aged (2-3 million years old) San Diego Formation and well-preserved fossil assemblages of terrestrial vertebrates in the Oligocene-aged (30 million years old) Otay Formation. Portions of the Study Corridor are also underlain by geologic deposits that contain moderate-sensitivity paleontological resources. These resources are known to include usually poorly preserved fossils of marine invertebrates and rare fossil remains of terrestrial mammals in the Pleistocene-aged (1-2 million years old) Lindavista Formation.

Evaluation of the potential for negative impacts to paleontological resources is done by superimposing the construction footprint on geologic maps showing the areal distribution of high- and moderate-sensitivity resources. The proposed construction footprint for each alignment alternative represents the maximum possible horizontal area of potential impact, and does not necessarily reflect the extent of actual, direct excavation impact on paleontological resources. The areas of direct excavation impact are more limited and occur in sections where grading would produce cut slopes in excess of 4 meters (13.2 feet) high. Burial of sensitive paleontological resources is not assessed as an impact to those resources; only cuts through these materials would have an impact. All build alignment alternatives would result in potential impacts to high- and moderate-sensitivity paleontological resources, where grading operations cut deeply into the San Diego, Otay, and Lindavista formations and physically destroy their contained fossil remains.

The No Build Alternative would have no paleontological resource impacts. The Tollway Alignment Alternatives would result in a large impact footprint and volume of grading, with the inclusion of the toll facilities. The depth and volume of grading impacts for the Freeway Alignment Alternatives would be less than the Tollway.

Mitigation Measures

Potential impacts caused by grading will be mitigated, by the construction contractor, through implementation of a comprehensive program of construction monitoring, fossil salvage, fossil preparation, fossil curation, fossil storage, and summary report preparation. The mitigation program would be identical for all build alignment alternatives. Details of the program are as follows:

- A qualified paleontologist will be at the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues.
- A paleontological monitor will be on-site at all times during the original cutting of previously undisturbed deposits of high sensitivity formations (San Diego Formation and Otay Formation) to inspect exposures for contained fossils. A paleontological monitor should be on site on a half-time basis to inspect cuts in moderate sensitivity formations (Lindavista Formation). In the event that fossils are discovered in moderate sensitivity formations, it may be necessary to increase the per day field monitoring time. Conversely, if fossils are not being found in these rock units, then the monitoring may be reduced. No mitigation or monitoring is necessary when grading in areas of low or zero sensitivity (Quaternary alluvial deposits, Quaternary stream terrace deposits, and artificial fill materials).
- When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. In most cases this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances the paleontologist (or paleontological monitor) will be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovering of small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screen-washing operation on the site.

- Fossil remains collected during the monitoring and salvage portion of the mitigation program should be cleaned, repaired, sorted, and cataloged.
- Prepared and cataloged fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited (as a donation) in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum. Appropriate steps for curation will be taken.
- A final report will be completed by the qualified paleontologist summarizing the results of the mitigation program. This report should include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. The report should also contain an inventory of all cataloged fossil remains.

While sensitive resources may be encountered during project grading, the recovery of these resources for scientific study would minimize potential impacts.

4.3 HYDROLOGY / DRAINAGE

Each project alignment alternative would have similar impacts upon hydrology and drainage. There would be no modifications of water bodies, relocations of streams, or effects on stream uses. There would be minor impacts to the drainages in Spring Canyon, some of which are classified as Waters of the U.S. (covered in [Section 4.10.1](#), Biological Resources). Standard drainage design would maintain normal flow in these drainages and ensure there is no substantial increase in erosion. Numerous pipes and culverts would be required to convey storm waters through the project corridor. There would also be a need for detention basins, which would all be located within the proposed project footprint or disturbance limits.

The project would cause increased runoff as the impervious area of the road replaces the natural surface. The Hydrology Study used the Modified Rational Method for all drainage basins in this study to determine peak flow rates. The Modified Rational Method estimates the travel time for rainfall to flow from the uppermost subarea in a drainage basin to a specific concentration point. The method then continues routing the flow through each downstream subarea, determining confluence flows where necessary, until the resulting peak flow and time of concentration at the area's outlet point are reached. The Soil Conservation Service's Unit Hydrograph was used in conjunction with peak runoff values from the Modified Rational Method to determine the retention volumes for sizing the detention basins. This analysis shows that with standard drainage design and construction of detention basins, the increase in runoff would be mitigated for all alignment alternatives to result in no more runoff coming from the area than exists today. The project would therefore not cause any substantial impact to drainage, and no extra mitigation measures are proposed.

Improvements along I-805 between Route 905 and Palm Avenue (widening the northbound on-ramp and addition of an auxiliary lane) would cause a minor increase to the current runoff. Runoff from this area can be left in current flow paths, entering into the current storm drain system without improvement. The increase for this area is negligible and should cause no measurable impact to the downstream system.

Improvements to the area between Airway Road and the POE on existing Route 905 would match much of the existing roadways already in place. The increase to runoff caused by improvements in this portion of the project would not be of a magnitude that would overload existing storm drain systems already in place in the area.

The off-site runoff is expected to be similar for each of the build alignment alternatives. Detention basins and pipes for the Expressway Staging Option would have the same capacity as for the Freeway, since this would avoid the expense of replacing or enlarging facilities if the expressway requires expansion.

The Tollway Alignment Alternatives would present a slight increase in on-site runoff due to a larger area of impervious surfaces near toll plazas, administration buildings/ parking and other toll-related facilities. The potential increase of flow would require minor additions to the retention capacity within the detention basin.

With the No Project Alternative, increases in the amount of runoff are expected to continue to increase, based on planned future developments on Otay Mesa. Each proposed development is now required to meet International Boundary Water Commission (IBWC) recommendations to reduce proposed runoff conditions back to pre-development conditions for runoff peaks.

Considerations for Final Design

The IBWC recommends (December 2000) that any increase in stormwater runoff flow rates and volumes caused by development in the Otay Mesa area be reduced so that existing flow conditions prior to development are not exceeded. The IBWC recommends that project sponsors provide assurances that the appropriate jurisdiction's requirements to guard downstream properties from flows greater than those in predevelopment conditions. The IBWC has delegated authority to the City of San Diego to monitor the development of the Otay Mesa area (Andy Seiger, IBWC - electronic correspondence December 15, 2000).

Based on planned developments on Otay Mesa, storm water runoff will continue to increase. Each proposed development is required to satisfy the local agencies drainage design criteria and be consistent with the regional drainage masterplan. In order to meet these recommendations, mitigations, such as detention basins with retention capability may be needed to reduce runoff generated from this project. The Route 905 final design features will meet the criteria outlined by the City and IBWC.

These design features would have the capacity to retain the increase in flow. Facility outlets would be designed to not increase the flow from 5-, 10-, 25-, and 50-year floods. As a result of these design measures the flows associated with a 100-year flood would not increase beyond predevelopment levels. The difference between the volume of existing runoff and the volume of projected runoff represents the volume to be retained in the project boundary.

The soils in the study area tend to be high in clay, which hinders the ability of the soil to absorb water. Retention storage is provided in a facility in which the runoff from a given flood event is stored and is not discharged into the downstream drainage system. This stored water may be used for irrigation or low-flow augmentation, or it can be allowed to evaporate or seep into the ground. To be totally effective, the water in the retention portion of each basin must be drained before the next storm occurs. The most effective method to drain water collected during a storm

event would be with the use of small drains to allow slow release of water downstream after the storm peak flow has passed.

Detention storage is short-term storage, which reduces the peak outflow to a rate less than the peak inflow and thereby lengthens the time of the basin runoff. The total volume of stormwater discharged is the same; it is simply distributed over a longer duration. The location and nature of storage basins would be determined during final design. Basins would be located to avoid impacting environmentally sensitive areas such as vernal pools. Conventional detention basins are designed not only to provide the needed reduction in flow characteristics, but provide some degree of water quality improvement. These basins are left in a “natural” condition to reduce erosion potential and promote infiltration. A basin constructed in a “natural” condition has dirt side slopes and a bottom. These detention facilities are included as an engineering/ hydraulic element of the proposed project, and are not intended to provide mitigation for other project impacts. Any incidental vegetation which occurs would be consistently cleared during periodic and necessary maintenance procedures. The soft-bottom condition would allow initial storm water to infiltrate into the ground, thereby providing “first flush” capability and helping to prevent contaminants from flowing into the downstream watershed (this mitigation measure would be considered if the conditions discussed under [Section 4.13.4](#) are met).

4.4 WATER QUALITY

The proposed Route 905 project could result in a number of impacts related to water quality and the beneficial uses discussed in [Section 3.5](#) of this EIR/EIS and the San Diego Basin Plan produced by the Regional Water Quality Control Board (RWQCB). Designated beneficial uses within the Study Corridor include agricultural supply, industrial service supply, contact and non-contact recreation, warm freshwater aquatic habitat and wildlife (terrestrial) habitat. These potential impacts involve both short-term (construction) and long-term (operational) impacts such as erosion/ sedimentation, existing on-site and construction-related hazardous materials, traffic-related hazardous materials spills, disposal of groundwater extracted during construction (if required), and the generation of contaminants from vehicle operation and roadway maintenance (e.g., landscaping-related irrigation and pesticide/ herbicide/ fertilizer use). Beneficial uses of both surface water and groundwater resources would be affected by any of the build alternatives.

The Freeway and Tollway Alignment Alternatives present negligible differences in water quality impacts. Erosion and sedimentation effects would be slightly greater for the Tollway Alignment Alternatives due to the small increase in total area of disturbance. Differences in the level of impacts among the three alignment alternatives are minor. The North Alignment Alternative would have greater proximity to vernal pools and would create manufactured slopes in a number of canyons. The level of impact for the Central Alignment Alternative would include slightly greater erosion and sedimentation effects due to the greater extent of grading within and adjacent to canyons. The level of impact for the South Alignment Alternative would include slightly greater erosion and sedimentation effects due to the larger extent of grading and construction within Spring Canyon.

Construction of any of the alignment alternatives would potentially encounter and impact an unauthorized disposal site (Tripp Salvage Landfill). Any release of constituents of concern (e.g. metals, organics) could impact beneficial uses of downstream waters and groundwater. A

mitigation plan, discussed in detail in [Section 4.12](#), for the Tripp Salvage Landfill site will be implemented prior to project construction, pursuant to direction from applicable regulatory agencies. The No Project Alternative would have no construction impacts, but redistribution of increasing traffic on local roads in the long term would cause an increase in vehicle-generated contaminants.

Mitigation Measures

Caltrans routinely uses a number of standard specifications and requirements related to water quality for roadway development projects, including stormwater pollution prevention guidelines, environmental assessment guidelines, and procedures for conducting water quality technical assessments and estimating highway runoff quality. In addition, Caltrans has recently been issued an approved National Pollution Discharge Elimination System (NPDES) Storm Water Permit by the DWQ (NPDES ORDER 99-06 CAS 000003). Permit conditions include adoption of a Storm Water Management Plan (SWMP), completed by Caltrans on December 31, 1997. Caltrans has also formulated a series of Storm Water Quality Handbooks, which provide guidelines for planning, design, construction, and maintenance activities as they relate to storm water quality management. In accordance with this guidance, preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) would be necessary.

In addition to the Federal, State and Local regulations, the IBWC oversees projects along the U.S.-Mexico border which may present political, economic, environmental or infrastructure concerns. With respect to hydrology and water quality, IBWC guidelines mandate that new developments in applicable border regions, including Otay Mesa, do not result in cross-border storm runoff volumes that exceed pre-development levels. The proposed project will comply with these guidelines by including a series of vegetation-lined detention/ retention basins into the project design. These basins, through settlement and filtering, would also serve to remove contaminants from project area runoff prior to release downstream.

Caltrans standard specifications and requirements for construction would minimize water quality impacts. They include measures such as employee/ contractor education, identifying and handling hazardous materials and appropriate maintenance and monitoring activities. These measures would allow project conformance with applicable San Diego Basin Plan water quality objectives and beneficial uses. Specific measures that will be considered for the proposed project include preservation of existing vegetation, use of landscaping and mulching, use of diversion and drainage structures, proper manufactured slope design, use of sediment containment structures (e.g., straw bales or silt fences), drainage outlet protection, use of retention/ detention and/or sediment basins, seasonal work restrictions, material recycling and “good housekeeping” (e.g., proper vehicle cleaning and maintenance practices). These standard measures will be implemented if necessary, at appropriate locations, and will preclude runoff discharge into known vernal pools, wetlands and associated watersheds to the maximum extent feasible. Any potential impacts relative to the disposal of extracted groundwater would be effectively avoided or mitigated through conformance with an approved Dewatering Waste Discharge Permit (NPDES No. CA0108707). Such conformance would ensure that Basin Plan water quality standards are met and that existing beneficial uses would continue unimpaired.

All impacts from construction-related erosion and sedimentation as well as facility operation would be effectively avoided or mitigated through implementation of the Caltrans SWMP, the Storm Water Quality Handbooks, the Contractors Guide and Specifications, and the use of

applicable Best Management Practices (BMPs). BMP's may include such measures as preserving existing vegetation, mulching, use of diversion and drainage structures, use of sediment containment structures, and use of retention/detention basins.

4.5 SOCIOECONOMIC IMPACTS

4.5.1 Relocation

Residential and business displacement can have adverse effects on the individuals displaced, as well as on the community and affected neighborhoods. The ability of groups or individuals to handle the disruption and change in living conditions brought about by relocation is often subjective. Nonetheless, it is recognized that impacts to individuals and families can occur and may result in the severance of established relationships and patterns of interactions. The elderly, the disabled, minorities, and children of school age may experience a variety of problems in adjusting to relocation, including anxiety and difficulty in establishing new friendships. Persons who have resided in an area for a long period of time, or are homeowners, tend to experience a greater sense of loss when compelled to relocate.

The proposed alignment alternatives would require the displacement of existing residences and businesses. Given the low number of displacements and the mitigation measures discussed below impacts are not considered substantial. The following is a discussion on the displacement impacts. Relocation information has been summarized from the Draft Relocation Impact Study (DRIS), and two DRIS Addendum, dated February 8 and March 16, 2000. Subsequent to detailed design of the proposed project, a Final Relocation Impact Study (FRIS) will be conducted. At the FRIS stage, interviews with potential displacees will be conducted to obtain more specific data about each displacement and relocation.

Residential Displacements

A total of two homes, one single family home and one mobile home, would be displaced by all alignment alternatives. Two additional homes would be displaced by the Tollway Alignment Alternative only. All of the residential properties impacted by the proposed project are located along Cactus Road (please see [Figure 4-1](#)). Aerial photographs of the Cactus road area, showing homes (noise receptors), are shown on [Figure 4-42](#) and [Figure 4-43](#).

The property located at 1708 Cactus Road includes two detached dwelling units on a 0.38 hectare (0.95 acre) lot ([Figure 4-1](#), Location #1). These residences would represent full takes for the Tollway Alignment Alternative only. Located behind the two detached dwelling units, in the southwest corner of 1708 Cactus Road, is an additional residential unit. This adjacent dwelling unit includes a mobile home and a separately operated business on a 0.22 hectare (0.54 acre) lot ([Figure 4-1](#), Location #2). The mobile home and business would be displaced by both alignment alternatives. The other home, impacted by all alignment alternatives, is a single-family residence south of the residences described above, located at 1724 Cactus Road ([Figure 4-1](#), Location #3).

The partial residential takes are the same for all alignment alternatives. The partial takes involve two single-family residences located at 1704 and 1812 Cactus Road. These homes could

potentially lose a portion of their driveways to Cactus Road. Both of these residences also have associated businesses. Access to these residences would be restored.

Business Displacements

Two businesses would be displaced by the proposed project (all alignment alternatives). As discussed above, one of the residential properties, 1708 Cactus Road, includes an associated business. Without conducting interviews or physical inspections of the business, it is difficult to accurately assess the exact condition and/or nature of business conducted. The mobile home residence at 1708 Cactus Road includes a separately operated business raising chickens and selling eggs on site. The second impacted business is Cactus Recycling, at 1703 Cactus Road on a 2.5-hectare (6.2-acre) lot ([Figure 4-1](#), Location #4). The detached single-family residence at 1708 Cactus Road includes one existing (communication antenna) and one potential (additional communications antenna placement under negotiation) income-producing uses on site. This site is a non-conforming use and, with the Tollway Alignment Alternatives, would be difficult to relocate with all the uses intact. A non-conforming use represents an existing land use which is in conflict with the appropriate local jurisdiction's land use designation for said property.

The First Draft Relocation Impact Study Addendum identified the Martin Furniture factory on St Andrews Avenue as a full-take acquisition. This relocation would have represented an expensive and time-consuming effort. The relocation of the Martin Furniture factory has since been avoided via a minor alignment variation. The alignment variation involves an 8-meter (24 feet) project shift to the south. This alignment shift to the south also avoids partial impacts to businesses immediately west and east of Martin Furniture. A new man-made drainage ditch impact would be presented by this southerly alignment shift. This new impact is discussed within the biological resources section of this document. This minor design change is also included in the appropriate updated graphics.

Seven additional businesses would be partially impacted by the Freeway and Tollway Alignment Alternatives, and four businesses would be partially impacted by the Expressway Staging Option. The partial takes for the Expressway Staging Option would be on an interim basis only. Partial takes include minor property impacts and alteration or loss of existing access points. If access is altered or eliminated, sufficient access would be maintained or new access restored. The partial business takes are detailed for each alternative alignment/ staging option in Table 4-1.

Table 4-1
BUSINESS PARTIAL TAKES

	Partial Takes for the Six build Alternatives								
	FN	FC	FS	TN	TC	TS	EN ¹	EC ¹	ES ¹
Otay Water District Storage Yard	1	1	1	1	1	1	1	1	1
Otay Crossroads Retail Center	1	1	1	1	1	1	1	1	1
Truck & Trailer Storage Yards	2	2	2	2	2	2	2	2	2
Sanyo Manufacturing	1	1	1	1	1	1	0	0	0
Casio Manufacturing	1	1	1	1	1	1	0	0	0
Sherwood Medical	1	1	1	1	1	1	0	0	0
Total	7	7	7	7	7	7	4	4	4

¹Reduction in partial takes for the Expressway Staging Option would be on a interim basis only. The Expressway Staging Option is a stage of the Freeway Alignment Alternative, and the impacts are presented for informational purposes only.

F indicates Freeway, E indicates Expressway Staging Option, T indicates Tollway, and N, C and S indicate North, Central and South Alignment Alternatives.

Residential Relocation and Resources

Two residential units would be displaced by all alternative alignments for this proposed project. Two additional residential units would be displaced by the Tollway Alignment Alternatives. One of these additional residences displays a sign that indicates bible study is conducted and is advertised as the “Chapel of Good News”. The owner of the chapel has indicated he is unwilling to relocate at this time. He has extensive ties to the Otay Mesa and San Ysidro residents. A search of the property tax records revealed that this property does not have an exemption as a church. The residence with a chapel is a non-conforming use and would be difficult to relocate with all of the uses intact because of zoning issues. Therefore, the chapel would most likely have to operate separate from the residence after relocation. It is assumed that the residence and chapel can be separated.

There is one tenant-occupied single-family residence impacted by the proposed project (1724 Cactus Road). The combination of this residence and a large lot represents a difficult relocation. The mobile home located on the southwest corner of 1708 Cactus Road that would be displaced is tenant-occupied, based on County Assessor’s records. The combination of mobile homes on a large lot, with chickens and the egg business represents a difficult relocation, because the City of San Diego requires mobile homes to be located within a mobile home park, which requires a conditional use permit.

The Uniform Relocation Act does not require that the chapel and associated businesses be relocated together, however, Caltrans will attempt to find suitable relocation sites if available and should the owner’s request it. The residences would be difficult to replace in the immediate Otay Mesa area. Replacement housing would most likely have to be in nearby San Ysidro or Otay Nestor areas. Although these replacement areas include comparable dwellings, the displaced residents may experience a life style change because the location is more urban compared to the current rural character of Otay Mesa. The character of Otay Mesa is changing, however, as rapid urbanization is taking place.

Business Resources

The chicken/ egg business includes a residence. It may be possible to relocate the residence and business together, but this combination represents a difficult relocation within an urbanizing area. The regional setting, along with the combination of uses permitted by right within the Otay Mesa Development District, presents unique problems with relocating and permitting these uses intact. The resource areas do not present similar opportunities for residences with associated businesses of this nature. There are also limited resources for residences on large lots in Otay Mesa, and fewer opportunities within the San Ysidro and Otay Nestor areas. Relocation of these uses, if possible, may require longer lead-time in order to reconstruct and obtain permitting.

Cactus Recycling includes a 2.5-hectare (6.2-acre) lot. Based on a field inspection this business utilizes the entire lot. Available data indicates the displaced business would have adequate replacement resources available in Otay Mesa, however, most of the identified available properties are in established business parks, which may not rent to this unique type of business.

Replacement Resources and Mitigation Measures

The replacement area used for residential and non-residential resource analysis includes the Otay Mesa/San Ysidro zip code 92173 (displacement area) and the Otay Nestor area (zip code 92154). Vacancy rates for these areas are provided below in Table 4-2. Relocation resources exist within the area for all displacements, however, adequate lead-time to locate replacement resources would be necessary. The magnitude of disruption to displaced residents and businesses would be diminished by the Caltrans Relocation Assistance Program. This minimizes impacts in an economic sense. It may not minimize the loss of social ties and upheaval experienced by the displacees forced to relocate.

For those displaced, relocation assistance payments, moving costs, and counseling will be provided in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). A summary of important relocation assistance information covered by the Uniform Act is included in Appendix B. Eligible displacees will be assisted by a Relocation Assistance Advisor to ensure that they are relocated to decent, safe, and sanitary homes and that all benefits of the Relocation Assistance Program are made available to them. All benefits and services will be provided equitably to all residential relocatees without regard to race, color, religion, age, national origins, and handicap as recorded under Title VI of the 1964 Civil Rights Act (see Appendix B). Eligible tenants would also be entitled to certain supplemental payments to compensate for increased rents or payments for a portion of a down payment on a home. Eligible homeowners would also be entitled to certain supplemental payments to compensate for increased cost of replacement homes over and above the amount received for their homes, increased interest costs, and certain other expenses. Some displacees may be eligible for Section 8 Rental Assistance Payments, which are offered by the County to displacees who meet the income criteria and, subsequent to relocation, live within the unincorporated portions of the County of San Diego.

The replacement areas discussed were selected as the most comparable replacement areas because of compatibility of community facilities, population characteristics and close proximity to the displacees' current residence/business. The San Ysidro and Otay Nestor areas were added because of the limited residential resources found in Otay Mesa. Market availability of replacement resources are expected to be available through the time of displacement for all

alignment alternatives. Adequate lead-time to locate replacement resources will be essential given the current vacancy rate limitations. The size of homes/ number of bedrooms could not be determined at this time. After more detailed design, and during the preparation of the FRIS, these characteristics will be identified.

Although no specific relocation sites are known at this time, the DRIS concludes that sufficient residential relocation resources would be available for all displacees (owners and renters) within the Otay Nestor and San Ysidro communities (92173 and 92143 zip code area). This determination was made using the San Diego Apartment Association's vacancy report for rental units, the Multiple Listing Service for owner-occupied single-family residences. This should not represent a major increase in travel distance or time for the displacees who choose to stay in the region. However, relocatees may not be able to retain a comparable lifestyle equal to that of Otay Mesa area given the more urban setting as opposed to the current rural location.

Deterioration in the quality of life in and near the right of way can cause potentially adverse reactions to those relocatees who have not yet been relocated, especially if vandalism and other criminal actions increase. Expedient demolition of existing structures would occur to mitigate vandalism and crime.

Table 4-2
HISTORICAL VACANCY RATES

	1990 Homeowner Vacancy Rate	1990 Vacant Units	1997 Apt. Rental Vacancy Rate	1997 Rental Apt. Vacant Units
Otay Mesa (CT 100.07)	7.4%	8	5.9%*	34
Otay Nestor Area (CT 100.02, 03, 04)	1.2%	65	3.7%**	17
San Ysidro (CT 100.05, 08, 09)	4.1%	226	5.9%*	34
San Diego County Total	2.2%	11,200	3.8%	1,940

*Includes the zip codes 92173 and 92143.

**Includes the zip code 92154.

Source: U.S. Department of Commerce, Bureau of the Census, 1990.
San Diego Apartment Association, 1997.

The analysis for the project alignment alternatives assumes a relocation schedule of one year. In order to meet this schedule, preliminary appraisals should be completed prior to execution of the Record of Decision, and any necessary condemnations should be processed in a prudent manner. Normally an 18- to 24-month period would be needed to accomplish the relocation of residents and businesses.

4.5.2 Local and Regional Accessibility

Otay Mesa Road provides primary access for area residents to the San Diego region and local public services. Accessibility within Otay Mesa is currently constrained and congested,

however, some short-term improvements have been implemented by the City of San Diego Otay Mesa Road widening project. Residents and businesses would benefit from the construction of Route 905, due to safer and more convenient vehicle travel. Congestion would be substantially reduced by all build alternatives. The Freeway and Tollway Alignment Alternatives would provide acceptable traffic conditions through the year 2020. Temporary impacts to local residents' vehicular access and circulation would occur during construction. Responsibility for maintaining access to new schools and parks as part of the planned development would be the responsibility of the developers. The No Project Alternative would not improve the safety of residents' access to local services and the region. Impacts to existing public services or public facilities that would occur as a result of any of the alignment alternatives would be minimized. The proposed project is considered a compatible land use with existing and planned public facilities in the vicinity, and it would improve accessibility for public services.

4.5.3 Community Cohesion and Character

The project would neither separate residents from existing neighborhoods nor from public services and facilities, most of which are located out of the area. None of the alignment alternatives would substantially alter the current physical arrangement of the area. Vehicular access would be maintained, during construction and ultimately enhanced for residents and businesses for all build alternatives.

The proposed project would have minimal impact on the overall character of the area. This project is an integral part of the ongoing development and future urban conversion of this area. This transition is governed by the Otay Mesa Community Plan and East Otay Mesa Specific Plan. The No Project Alternative would not result in changes to the existing character of the area.

4.5.4 Public Safety and Health

The construction, operation and use of major transportation facilities similar to and including the proposed project involve potential accident risk. Construction of Route 905 would contribute to the improvement of the health, safety and welfare of the area's residents by reducing the high accident rate and traffic-related fatalities associated with Otay Mesa Road. One particular safety issue shared with other highway segments in San Diego County near the International Border is the crossing of highways by pedestrians. In the past those killed or injured have been undocumented immigrants from Mexico or Central America who attempted to cross freeways in an effort make their way north and avoid detection by the Border Patrol.

It is difficult to predict if or where along the proposed Route 905 alignments safety risks would develop. Response times for emergency services would not be adversely affected as no existing or future cross streets would be closed during construction. On-site detours would not require the re-routing of traffic. Traffic levels are forecast to increase over time with or without the project, and studies indicate future local street traffic will improve in Otay Mesa, particularly along Otay Mesa Road, with the proposed project.

No Project Alternative

With the projected increase in traffic volumes, the number of accidents and the severity of occurrences on local streets could increase under the No Project Alternative. Pedestrian and

bicycle safety could be affected. As future traffic increases occur, it may become appropriate for local jurisdictions to focus efforts on identifying signalized crossing locations, speed limits, fencing and other measures. Mitigation would be the responsibility of local agencies.

4.5.5 Environmental Justice

All federal agencies and departments are directed to comply with Executive Order 12898, signed on February 11, 1994, which states: "In accordance with Title VI of the Civil Rights Act of 1964, each Federal Agency shall ensure that all programs or activities receiving Federal financial assistance that affect human health or the environment do not directly, or through contractual or other arrangements, use criteria, methods or practices that discriminate on the basis of race, color, or national origin."

The Department of Transportation's Final Environmental Justice Strategy, published on June 29, 1995, outlines various goals and policies for achieving environmental justice in its projects and programs. Specifically, the objectives are to: (1) improve the environment, public health and safety in the transportation of people and goods, along with the development and maintenance of transportation systems and services, (2) coordinate transportation policies and investments with environmental concerns, with consideration of economic and social interests, and (3) consider the interests, issues, and contributions of affected communities, disclose appropriate information, and give communities an opportunity to be involved in decision making. The Department of Transportation and FHWA have issued the Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (published in the April 15, 1997 *Federal Register*, Vol. 62, No. 72) and FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (FHWA Technical Advisory 6640.23, December 2, 1998) to ensure compliance with Executive Order 12898.

Each federal agency is required to provide opportunities for community input in the NEPA process, including identifying potential effects of and mitigation measures for projects, programs or activities they undertake. Local residents have been given opportunities during the environmental process for Route 905 to participate in meetings and hearings. They will continue to have such opportunities during the remainder of the NEPA/ CEQA process. A public scoping meeting was held on April 10, 1995 to solicit input regarding project alignment alternatives and concerns, and a public information meeting was held on September 25, 1997 to update the public on the project alignment alternatives and the status of the impacts analysis. Project status updates have been reported at monthly meetings of the Citizens for Border Transportation (CBT) over the past two years. The CBT was formed by the Otay Mesa Chamber of Commerce in 1990. This group monitors and supports the agencies involved in infrastructure planning and development on Otay Mesa.

The Otay Mesa area population is small and has a larger proportion of minority populations relative to the San Diego region. Relative to countywide census statistics, there are six times more people of Hispanic descent in Otay Mesa and twice as many people of American Indian, Eskimo or Aleutian heritage. Persons below the poverty level represent 29 percent of residents of Otay Mesa (versus 11 percent for the region). Minority or low-income individuals are likely to be affected by the proposed project, resulting from proximity impacts such as noise and air quality. However, these individuals are dispersed, and there does not appear to be an established community within the project corridor. Individuals on Otay Mesa would be similarly impacted by the project. The Tollway Alignment Alternatives have the potential to discriminate against

low-income people who cannot afford to pay the tolls on a daily basis; however, this impact would be minor because Otay Mesa Road would continue to be available as an alternate “free” route. The potential relocation impacts would be low, due to the small number of households impacted by the project. Therefore, the potential adverse effects on low-income or minority individuals would not be disproportionately high. These individuals would generally benefit from the project due to improved accessibility, response times for emergency vehicles, and potential increased employment and construction wages.

4.6 LAND USE / LOCAL PLANS

The six build alignment alternatives have similar land use impacts. [Figure 4-2](#), [Figure 4-3](#), [Figure 4-4](#), [Figure 4-5](#) and [Figure 4-6](#) show the impact footprints of the various alignment alternatives superimposed upon existing land uses. The most common zoned land uses impacted are undeveloped, agriculture, graded/ developing, and light industrial. Construction of the proposed project would convert the listed land uses to transportation-related uses associated with Route 905. The Tollway Alignment Alternatives would impact slightly more land than the Freeway Alignment Alternatives due to the need for additional right-of-way for toll facilities. Differences between alignment alternatives are much more subtle. A detailed discussion of each of the six build alignment alternatives is provided below.

Freeway - North Alignment Alternative

The areas of disturbance for the North Alignment Alternative would include an impact footprint of approximately 223.6 hectares (552.6 acres). Impacted land uses include 13.9 hectares (34.3 acres) of roads, 106.9 hectares (264 acres) of undeveloped land, 10.4 hectares (25.6 acres) of agriculture, 8.6 hectares (21.4 acres) of graded and developing land, 3.2 hectares (7.8 acres) of mixed use, 7.0 hectares (17.1 acres) of light industrial and 3.0 hectares (7.4 acres) of land owned by the City Airports Division. Of the impacted area, approximately 6.7 hectares (16.5 acres) are within the Multi-Habitat Planning Area (including the OCCS Preserve).

The City Airports Division parcel is not currently used for airport purposes; alternative land use plans, which incorporate the project have been developed. The proposed project would cross through agricultural areas with resulting conversion to transportation-related uses. This impact is discussed in detail in [Section 4.6.4](#), Farmland. Graded and undeveloped lands include lots that have been prepared for future industrial development. The area of disturbance crosses through these lots south of Camino Maquiladora and would preclude development adjacent to these lots. Mixed-use properties are impacted along Cactus Road (mixed use includes light industrial, commercial and residential uses). A detailed discussion on these impacts is provided in [Section 4.5.1](#), Relocation. Commercial areas within the eastern portion of the project corridor, near Siempre Viva Road, would also be impacted. These areas consist of uses such as parking or truck storage, existing pavement, landscaping and graded areas.

Freeway - Central Alignment Alternative

The impacts for the Central Alignment Alternative would be slightly different from those described for the North Alignment Alternative. The areas of disturbance for the cCentral Alignment Alternative would include an impact footprint of approximately 222.6 hectares (551.1 acres). Impacted land uses include 13.7 hectares (33.7 acres) of roads, 112.2 hectares (277.3

acres) of undeveloped land, 10.3 hectares (25.5 acres) of agriculture, 4.9 hectares (12.1 acres) graded and developing, 3.2 hectares (7.8 acres) mixed use, 6.6 hectares (16.3 acres) of light industrial and 1.0 hectares (2.4 acres) of airport land (as discussed above). These impact areas include approximately 8.7 hectares (21.5 acres) of impact to lands within the MHPA.

Freeway - South Alignment Alternative

The impacts for the South Alignment Alternative would be slightly different from those described for the North Alignment Alternative. The areas of disturbance for the South Alignment Alternative would include an impact footprint of approximately 223 hectares (551.2 acres). Impacted land uses include 13.7 hectares (33.8 acres) of roads, 112.9 hectares (279 acres) of undeveloped land, 10.8 hectares (26.6 acres) of agriculture, 4.8 hectare (12 acres) graded and developing land, 3.2 hectares (7.8 acres) mixed use, 6.3 hectares (15.4 acres) light industrial land, and 0.6 hectare (1.4 acres) of airport land (as discussed above). These impacts include approximately 13.9 hectares (34.4 acres) of impact to lands within the MHPA.

Tollway - North Alignment Alternative

The Tollway – North Alignment Alternative would have a greater total area of disturbance than the same Freeway Alignment Alternative due to the addition of toll facilities, a parking lot and utility structure and a toll administration building. The area of disturbance for the North Alignment Alternative would include an impact footprint of approximately 230.5 hectares (569.5 acres). Impacted land uses include 14.2 hectares (35.2 acres) of roads, 109.8 hectares (271.3 acres) of undeveloped land, 12.4 hectares (30.7 acres) of agriculture, 9.6 hectares (23.8 acres) of graded and developing land, 3.7 hectares (9.1 acres) of mixed uses, 7 hectares (16.5 acres) of light industrial development and 3.0 hectares (7.4 acres) of land owned by the City Airports Division. Of the impacted area, approximately 7.0 hectares (17.2 acres) are within the MHPA. The impacts would be similar to those described for the Freeway - North Alignment Alternative; however, the impacts would be 6.9 hectares (17.0 acres) larger.

Tollway - Central Alignment Alternative

The area of disturbance for the Central Alignment Alternative would include an impact footprint of approximately 228.3 hectares (569.5 acres). Impacted land uses include 14.1 hectares (34.8 acres) of roads, 114.1 hectares (281.9 acres) of undeveloped land, 12.6 hectares (31.1 acres) of agriculture, 5.5 hectares (13.6 acres) of graded and developing land, 3.7 hectares (9.1 acres) of mixed use, 6.6 hectares (16.3 acres) of light industrial, and 1.0 hectare (2.4 acres) of airport-owned land. The impacts listed above include approximately 9.1 hectares (22.4 acres) of impact to the MHPA. The impacts would be similar to those described for the Freeway - Central Alignment Alternative, however, the impacts would be 5.8 hectares (14.3 acres) larger.

Tollway - South Alignment Alternative

The area of disturbance for the South Alignment Alternative would include an impact footprint of approximately 228.7 hectares (565.2 acres). Impacted land uses include 14.1 hectares (34.8 acres) of roads, 114.9 hectares (283.9 acres) of undeveloped land, 13.0 hectares (32.2 acres) of agriculture, 5.4 hectares (13.4 acres) of graded and developing land, 3.7 hectares (9.1 acres) of mixed use, 6.3 hectares (15.4 acre) of light industrial and 0.6 hectare (1.4 acres) of airport-owned land. The impacts listed above include approximately 14.3 hectares (35.2 acres) of impact to the

MHPA. The impacts would be similar to those described for the Freeway - South Alignment Alternative, however, the impacts would be 5.7 hectares (14.1 acres) larger.

Expressway Staging Option – North Alignment Alternative [Presented for informational purposes only]

The area of disturbance for the North Alignment Alternative would include an impact footprint of approximately 175.6 hectares (434.1 acres). Impacted land use acreage's would be slightly less than for the same Freeway Alignment Alternative. The differences in potential areas of disturbance would occur because most of the Middle Segment would be constructed to four lanes instead of six lanes and because the Expressway does not include as many grade-separated interchanges. The reduction in impacts would be on an interim basis only. The Expressway would also impact approximately 48.3 fewer hectares (119.3 acres) within the eastern portion of the project corridor, since the local access road, Enrico Fermi Extension would not be included as part of this staging option. Impacted land uses include 9.1 hectares (22.6 acres) of roads, 27.9 hectares (68.9 acres) of undeveloped land, 37.4 hectares (92.4 acres) of agriculture, 3 hectares (7.3 acres) of graded/developing land, 0.1 hectares (0.3 acres) of public services, 3.7 hectares (9.1 acres) of light industrial use and 2.9 hectares (7.1 acres) of commercial use.

Expressway Staging Option – Central Alignment Alternative [Presented for informational purposes only]

The area of disturbance for the Central Alignment Alternative would include an impact footprint of approximately 174.6 hectares (431.6 acres). The impacted land use acreages would be similar to those for the same Freeway Alignment Alternative.

Expressway Staging Option – South Alignment Alternative [Presented for informational purposes only]

The area of disturbance for the South Alignment Alternative would include an impact footprint of approximately 175.2 hectares (433 acres). The impacted land use acreages would be the similar as those for the same Freeway Alignment Alternative.

Half-Diamond La Media Interchange Option

The half-diamond option for the Freeway Alignment Alternatives would have the same impact on land uses as the full-diamond option. No adverse impacts are expected as a result of either option. Right-of-way would be acquired for the full-diamond under either option, and would likely be graded in the long term.

No Project Alternative

There would be no impacts to existing land uses resulting from the No Project Alternative.

4.6.1 Consistency with Plans/ Planned Land Use

Local jurisdictions have developed their land use plans with Route 905 in mind. Route 905 is shown on plans, including tentative maps, for specific development projects. The general alignment of the proposed project is consistent with these plans. A more detailed discussion for

each build alignment alternative is provided below, with specific impacts to plans identified. Despite these minor impacts it can be concluded that all build alignment alternatives are consistent with local plans.

The SANDAG 2020 Regional Transportation Plan (RTP) represents the comprehensive transportation plan for the San Diego region. The 2020 RTP includes Route 905 as a six-lane freeway. Therefore the proposed project, including all alignment alternatives, is consistent with the Highway Element of this plan. The 2020 RTP does not mention a tollway, however the differences between the Tollway and Freeway Alignment Alternatives are minor. Chapter 1 ([Section 1.4](#), Transportation Plans) provides further details of the inclusion of the proposed project in state and regional transportation plans.

The City of San Diego - Otay Mesa Community Plan ([Figure 3-3](#)) represents the most applicable land use-planning document for the proposed project. This plan identifies a six-lane freeway in the same location as the proposed project; therefore the proposed alignment alternatives, are consistent with this plan.

The County of San Diego's East Otay Mesa Specific Plan ([Figure 3-4](#)) includes Route 905, and has applicability to the northern part of the proposed 905/125 interchange and the local access road extension to Enrico Fermi Drive. The planned land uses associated with the East Otay Mesa Specific Plan would not be precluded from development by the proposed local connector road to Enrico Fermi Drive nor the 905/125 interchange.

There are a total of 29 private development plans and proposals, located within the Study Corridor. Each of these plans have tentative or final map approval, and consist primarily of residential development in the western portion of the Study Corridor and industrial/commercial development in the remainder of the corridor. These development plans, as well as, 15 public development projects are described in detail in Appendix C.

Projects with master and specific plans, which were reviewed for this project are shown on [Figure 4-7](#), [Figure 4-8](#) and [Figure 4-9](#) and include but are not limited to the following:

- Brown Field Airport Master Plan
- California Terraces (Ocean View Hills) Precise Plan
- Santee Investments Precise Plan
- Otay International Center Precise Plan
- Otay Ranch General Development Plan/Subregional Plan

Two additional active development projects are immediately adjacent to Study Corridor boundaries. Remington Hills, a 40-hectare (100-acre) subdivision project located south of the existing Route 905 right-of-way and east of I-805, was approved in July 1995. Route 905 is consistent with plans for these two projects. This development has obtained necessary federal permits and could begin construction of 252 single-family residential units.

The South Palm/Palm Ridge area, which covers 66 hectares (162 acres) also warrants discussion. This site, located in the northeast quadrant of the I-805/Route 905 interchange, was originally proposed (January 1995) to contain 376 single-family dwelling units. Although the applicant is no longer pursuing this project, a new applicant could propose a similar development for this site.

Other projects within the Study Area but not immediately adjacent to the Study Corridor include Dennergy Ranch, Robinhood Ridge and Hidden Trails, all located north of the Study Corridor. The Dennergy Ranch proposal includes 99 hectares (245 acres) and proposes 1,316 residential units (including 496 single family and 820 multi-family units) as well as elementary school/neighborhood park sites. The precise plan was approved in 1993 for 1,503 units. Grading has begun for this project. The Robinhood Ridge proposal includes 125.5 hectares (310 acres). The precise plan was approved in 1991 for 1,116 residential units as well as industrial and commercial uses. A revised precise plan to conform to the adopted MSCP has been submitted to the City. The revised proposal totals 775 dwelling units; 475 single family and 300 multi-family. The Hidden Trails development consists of 91 hectares (225 acres). In process for several years, the current proposal is to develop the site with 558 residential units (228 single family and 330 multi-family), as well as a portion of a neighborhood park.

Brown Field Airport Master Plan

The original and controlling Master Plan is a 1980 document, which was adopted in 1981 and was environmentally cleared by the City in a related certified EIR. Planned uses include utilities south of Otay Mesa Road, aircraft operating area, aviation commercial, aviation reserve, administrative area and non-aviation commercial north of Otay Mesa Road. Commercial categories, aviation reserve and utilities categories are located within the Study Corridor. A draft 1992 Master Plan Update proposing a new runway and substantially greater commercial and industrial uses was completed by the City, but not adopted. Although the 1992 plan was not environmentally cleared, several elements, within an Immediate Action Plan, relating to runway and taxiway upgrades or realignment, instrument landing system issues and bulk fuel storage were addressed in a 1992 City-approved mitigated negative declaration. An environmental assessment was also prepared for the FAA on the Immediate Action Plan following adoption of the City document. This was submitted to the FAA in December 1992 and revised in May 1993.

A new master plan, titled the San Diego Air Commerce Center Master Plan at Brown Field, has been prepared. The Final Environmental Impact Report, which was signed by the City of San Diego on January 20, 2000, has been prepared and the project is scheduled for Planning Commission/ City Council hearings in Spring/ Summer 2000. This Master Plan proposes conversion of Brown Field to a cargo-focused airport with capabilities to serve an increased commercial-industrial market. The proposed plan also includes a maximum runway extension from its current length of 2400 meters (8,000 feet) up to 3500 meters (11,500) feet with expansion of the current Brown Field boundaries. Among other improvements, a new administration center, child-care center, hotel(s) and new fixed base operator facilities would be built on the airport site. Review of the appropriate state law and education codes, as well as consultation with the Caltrans Headquarters Aviation Consultant has identified no additional analysis required regarding the child care center included in the master plan. The State Education Code Section 17215 requires the review of plans for any schools (kindergarten through 12th grade) within 3.2 kilometers (two miles) of a runway. The new development is expected to affect approximately 162 hectares (400 acres) of the airport property (i.e., all areas not assigned to runway/taxiway needs). Route 905 would be consistent with the Master Plan, and would be beneficial in providing improved access.

California Terraces Precise Plan

This plan was adopted and the project approved by the San Diego City Council in April, 1994 (see [Figure 3-9](#)). The plan area covers approximately 269 hectares (665 acres) located immediately north and south of the existing Route 905 right-of-way and approximately 0.8 kilometer (0.5 mile) east of I-805. A revised dwelling unit count of 4,118 (1,215 detached and 2,903 attached homes) has been assessed by the City as substantially conforming to the approved plan. Other uses, including a commercial center, neighborhood and community parks, elementary and junior high schools and open space are also planned.

A recently revised Precise Plan (1998) incorporates the currently proposed State Route 905 alignment. Planned California Terraces land uses located within the Study Corridor include Route 905 right-of-way; open space and single family residential south of the state route; and single family and multi-family residential, residential/church, and commercial uses north of the state route. Two conceptual planned uses adjacent to the Study Corridor on the northern side, where the corridor boundary and the existing Route 905 right-of-way correspond. These uses would potentially include a school and community park, however, to date the ultimate location of these planned uses is unknown. Federal and state resource permits have been obtained and grading began in February 1997. Home sales began in 1998. Route 905 would be consistent with this plan.

Santee Investments Precise Plan

The Santee Investments Otay Mesa Precise Plan, which was adopted in November, 1993, encompasses approximately 52 hectares (129 acres) south of the Route 905 right-of-way and west of Caliente Boulevard. As illustrated in [Figure 3-10](#), proposed land uses included a community park, a high school, open space, residential and commercial. Approximately 0.8 hectare (2 acres) of freeway right-of-way and the proposed community park, which was to be located north of Airway Road, were within the Study Corridor. Subsequent to the adoption of the precise plan, however, Airway Road has been realigned to the north, and the Sweetwater Union High School District has initiated condemnation proceedings on approximately 20 hectares (50 acres) south of the realigned road. As a result, the acreage north of Airway Road and the high school is no longer of sufficient size for an 8-hectare (20-acre) community park. The current land use types and locations shown on [Figure 3-10](#) (including the Airway Road alignment) are derived from the adopted Precise Plan. While proposed changes to this plan are pending, the current Precise Plan depicted on [Figure 3-10](#) must be used until the proposed changes are formally adopted. Route 905 would be consistent with this plan.

Otay International Center Precise Plan

First evaluated by the County in 1983 prior to annexation of western Otay Mesa into the City of San Diego, the Otay International Center (see [Figure 3-11](#)) is a planned development focusing on border services, truck and freight facilities, warehousing, and associated commercial, industrial, business park and motel/ restaurant facilities. The precise plan area is the same as that analyzed for the County Otay International Center Specific Plan, and includes a total of 182 hectares (449 acres). Following adoption of the precise plan, a development plan/ tentative map was filed with the City. Now largely built out, uses included within the Study Corridor are associated with Lots 1B, 2A, 4 and 5A and are related to motel/ restaurant, business park and commercial border services. Route 905 would be consistent with this plan.

Additional Developments

As discussed above, the City has long designated the easterly portion of the mesa as an appropriate locale for industrial development. Based on records obtained from Long Range Facility Planning, Development Services, and Engineering Maps and Records, 24 tentative and/or final development maps (held as open or approved projects by the City) have been submitted for development within the Study Corridor (see [Figure 4-7](#), [Figure 4-8](#) and [Figure 4-9](#)). These projects are also listed in Appendix C. Although final maps are good indefinitely, tentative maps are valid for 36 months, with a possible one-time extension of an additional 36 months. It is expected that some of the tentative maps/ projects may not be carried forward by their proponents and may be dropped from the development catalogue.

Five of the projects, as described above, have submitted precise or master plans. The remainder (19) consist of single use (industrial or commercial) developments of varying size. As indicated in Appendix C, most of the parcels in the mid-section of the Study Corridor were designed with a right-of-way included to accommodate a future freeway. Those development projects that have the potential to be directly impacted by Route 905 are also identified in Appendix C.

The North and Central Alignment Alternatives would incorporate all of the MSCP guidelines, with the exception of the size of the proposed arch culvert for the wildlife undercrossing. The culvert dimensions four meters (11.8 feet) wide, 3.8 meters (12.4 feet) high and 61.9 meters (203 feet) long would not meet MSCP standards for effective undercrossing. The MSCP standards call for a length to width ratio of less than 2 to 1 for wildlife undercrossings designed to accommodate large animals. Therefore, the project would result in a minor policy conflict with the MSCP. However, because the proposed wildlife corridor is constrained by border fencing to the south and by a two-meter (six-foot) pipe wildlife crossing under Otay Mesa Road to the north, it is expected to be used only by small to medium-sized mammals. The proposed culverts would not result in further hindrances to wildlife crossings, and would therefore be effective. The South Alignment Alternative would include a bridge over the wildlife corridors within the MSCP areas.

Freeway – North Alignment Alternative

The North Alignment Alternative would traverse several planned industrial developments, and would be adjacent to two planned residential developments (please refer to [Figure 3-9](#), [Figure 3-10](#) and [Figure 3-11](#)). The industrial developments potentially impacted include the Brown Field Master Planning Area (Parcel J), Pacific Gateway (Parcel F), Mesa Business Park (Parcel G), Otay Heights Business Park (Parcel H), Otay Mesa Business Park (Parcel I) and Brown Field Business Park (Parcel K).

Impacts to the Brown Field Master Planning Area would be minor since the impacted area is designated for utilities use. Grading for Pacific Gateway has already occurred, and the North Alignment Alternative would have a major potential impact on this development. Industrial development in portions of the Mesa Business Park, Otay Heights Business Park, Otay Mesa Business Park, and Brown Field Business Park would also have potentially substantial impacts. However, the North Alignment Alternative transitions back to follow the community plan alignment, which was the assumed alignment for the planned developments tentative and final maps. This transition would minimize the impacts east of Cactus Road. Impacts resulting from

project construction through the Otay Corporate Center South (Parcel E), and the approved biological preserve, are addressed in [Section 4.10](#) below.

Potentially impacted residential developments include Remington Hills, California Terraces and Santee Investments Precise Plans ([Figure 3-9](#) and [Figure 3-10](#)). If Freeway construction occurs after Remington Hills and California Terraces are built and occupied, residents could experience temporary impacts associated with construction, including visual, noise, and dust effects. The California Terraces land use plan has been amended to incorporate Route 905. The incorporated alignment corresponds to all of the build alignment alternatives. No further amendment of the Precise Plan would be required. The land use plan for Santee Investments also shows an alignment for Route 905. This alignment matches all of the proposed alignment alternatives, and no further amendment of the Precise Plan would be necessary.

The North Alignment Alternative would also traverse the Otay International Center Precise Plan Area. This development, located in the eastern portion of the Study Corridor, is primarily built out and includes reserved right-of-way for Route 905. However, several partial takes may occur.

The alignment of the proposed local access road to Enrico Fermi Drive east of the 905/125 interchange would traverse one planned industrial development, Jet Air (Parcel V). The connector road would preclude development within the center of this parcel and require a revised tentative map to allow development of the parcel. Construction easements would be required for portions of the material site that are outside of the proposed right-of-way; inconsistency with any plans in this area is not expected.

Freeway – Central Alignment Alternative

The Central Alignment Alternative would have the same temporary construction impacts to residential development impacts as those described for the North Alignment Alternative. The Central Alignment Alternative would also traverse the same planned industrial developments, however, west of Heritage Road only the southernmost part of the Otay Corporate Center South parcel and the Brown Field Master Planning Area would be affected. The Central Alignment Alternative would have similar impacts on the Otay Corporate Center South.

Freeway – South Alignment Alternative

The South Alignment Alternative has been anticipated in the approved tentative and final tract maps for parcels including Pacific Gateway, Mesa Business Park, Otay Heights Business Park, Otay Mesa Business Park and Brown Field Business Park. The proposed project would only impact the edges of graded pads where the project footprint slightly exceeds the land originally reserved for the proposed project. The South Alignment Alternative would have similar impacts on Otay Corporate Center South.

Tollway – North Alignment Alternative

The area of disturbance for the North Alignment Alternative and the resulting impacts are similar to those for the same Freeway Alignment Alternative. There is one exception; however, additional development of the Mesa Business Park and Otay Heights Business Park would be substantially affected with the Tollway - North Alignment Alternative. These substantial effects

would be due to the construction of a parking and utilities lot on the Otay Mesa Business Park parcel, and a tollway administration building on the Otay Heights Business Park parcel .

Tollway – Central and South Alignment Alternatives

The area of disturbance for the Central and South Alignment Alternatives and the resulting impacts are similar to those for the same Freeway Alignment Alternatives.

Mitigation Measures

Standard construction practices will be used to mitigate temporary construction impacts such as noise, visual, and dust to future residents of the Remington Hills and California Terraces projects. Further details are provided in [Section 4.18](#), Construction Impacts. The City of San Diego, through the development review process, would be responsible to ensure developments include noise mitigation. Impacts to the MHPA will be mitigated through negotiation with relevant resource agencies and reference to guidelines within the MSCP Subarea Plan. All property acquisition shall occur according to applicable federal and state laws. Caltrans will coordinate with affected property owners. A revised tentative map for the Jet Air parcel would be necessary to show the location of the connector road from the 905/125 interchange to Enrico Fermi Drive.

Conclusion

All of the alignment alternatives would have impacts on planned developments. However, these impacts would be minimized and would include the mitigation measures described above. City plans have always included Route 905. Increased access provided by Route 905 is a major benefit to planned development and industry. Otay Mesa has large areas with industrial zoning, into which displaced industry would have opportunities for relocation. The Route 905 alignment alternative anticipated in tentative and final tract maps for these developments is similar to the South Alignment Alternative. The Tollway Alignment Alternatives would preclude additional development on two planned industrial development parcels due to the construction of a parking and utilities lot and an administration building.

4.6.2 Park and Recreation Resources

There are no existing park facilities located within the Study Corridor, or near the proposed project right-of-way. Therefore, no 4(f) impacts or constructive uses would occur. Section 4(f) of the Department of Transportation Act, codified in Federal law at 49 U.S.C. §303, declares that it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance, (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs which use lands protected by section 4(f).

Constructive use occurs when a transportation project does not incorporate land from a Section 4(f) resource but the project's impacts due to proximity are so severe that the activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment would occur only when the protected activities, features, or attributes of the resource are substantially diminished.

The California Terraces and Santee Investments projects both include planned park facilities adjacent to the proposed project corridor. The locations of these planned parks are conceptual in nature and final locations have yet to be determined (Meeting between Jason Reynolds, Caltrans District - 11 and Bill Levine, City of San Diego, Planning Department, January 24, 2001). A corridor for the proposed project has been incorporated into the California Terraces and Santee Investments developments, therefore avoiding the potential for a direct Section 4(f) impact. The potential for constructive use due to proximity of the proposed project could not be determined at this time, due to the conceptual locations of the park facilities, as well as, the uncertain future of the park's final locations (Phone conversation between Jason Reynolds, Caltrans District – 11 and Stan Fye, City of San Diego – Planning Department, January 29, 2001). The concurrent progress of these developments and Route 905 will most likely avoid the potential for a Section 4(f) constructive use, however coordination with the City of San Diego to address any future 4(f) issues will continue.

The joint development of the proposed Route 905 project and the adjacent developments will continue. As the highway planning process moves forward and park plans advance, Caltrans, on behalf of FHWA, will continue to coordinate with the City of San Diego to ensure that the highway and parks are jointly planned.

The conceptual locations of the planned park facilities are provided on [Figure 3-6](#), [Figure 3-9](#) and [Figure 3-10](#). MHPA lands in the area are considered preserves, not parks; there are no planned trails or other recreational activities. The proposed highway project does not conflict with any existing parks or planning for any future public parks. There are no resources, which qualify as protected under Section 4(f) of the Department of Transportation Act. The existing bikeway along Otay Mesa Road, which would be re-routed, as discussed in Chapter 1, [Section 1.5](#), would also not qualify as a Section 4(f). This bikeway is used as a transportation mode, not for recreation, and would be re-routed to maintain continuity.

4.6.3 Open Space

A substantial amount of undeveloped land (mostly farmland) exists within areas covered by both the Otay Mesa Community Plan and East Otay Mesa Specific Plan. The proposed Route 905

alignment alternatives, however, do not encroach into or impact any officially designated open space.

The areas of open space impact are mostly comprised of farmland. These lands, although falling under the city's definition for open space uses, are not designated for open space in any adopted plans, except for lands within the MHPA. Project impacts to open space lands would be minor.

4.6.4 Farmland

[Section 3.6.4](#) discusses the affected farmland; [Figure 3-5](#) shows the distribution of farmlands. Farmland impact estimates have been calculated for each of the six build alignment alternatives, using the Farmland Conversion Impact Rating Form AD-1006. The completed forms are provided in Appendix F. This impact rating form provides a number rating based on land evaluation and site assessment criteria with a maximum achievable score of 260 points. Scores for each of the build alignment alternatives totaled 101 or 102 points, which are low ratings. According to Farmland Protection Policy Act (FPPA) guidelines, sites with an assessment of less than 160 points should be given a minimal level of consideration for protection. According to these guidelines and the evaluation results, project impacts to farmland are considered minor.

Agricultural parcels south of Otay Mesa Road that would potentially be divided or landlocked by the proposed project would have alternative access provided. The National Resource Conservation Service has identified the percentage of farmland within the county to be converted by the proposed project to be two-tenths to four-tenths of one percent of the total inventory. Additionally, the FPPA definition of farmland does not include land already committed to urban development, and since the entire mesa is planned for future urban use, farmlands are considered an interim use.

Mitigation Measures

Topsoil within a proposed material site at the east-end of the project, will be stored in piles. The topsoil will be replaced after grading is completed unless the affected properties are in the process of grading and developing. No additional mitigation measures are recommended since the farmland impacts are considered minor and since there is an absence of existing major active agricultural operations in this area. Because the timing, size and location of farmland takes, on a cumulative basis, are not under the control of Caltrans, Caltrans cannot assume responsibility for mitigation of these cumulative impacts. Local jurisdictions (i.e., the City and County of San Diego) are responsible for land use and zoning decisions, and the conversion of farmland to new development.

4.7 ECONOMICS

Economic impacts, both potentially adverse and beneficial, are not expected to be substantially different for the alignment alternatives. The No Project Alternative would not displace businesses, but would result in higher congestion / less accessibility for existing properties.

4.7.1 Effects of Right-of-Way Acquisition on Business

Economic effects to businesses from right-of-way acquisition and displacement include the cost of moving, replacing buildings and the effects of relocation on revenues and profits. All of the project alignment alternatives would result in the relocation of the same three businesses. Each business displaced would be relocated under the Caltrans Relocation Assistance Program as described in [Section 4.5.1](#), above. No interviews are conducted during preparation of the DRIS, therefore the number of employees and the size of each business impacted and potentially relocated will be determined later in the design and FRIS processes. An additional nine businesses would be partially impacted. Partial impacts would potentially include modification or loss of existing access, losing a small portion of the properties, or parking areas. The proposed plan for Route 905 will maintain or restore access for all of the impacted businesses. Given the small number of businesses, the impacts are considered minor and would not have a substantial negative effect on the viability of the businesses.

The project would not cause a substantial loss of business or employment. The primary land use within the Otay Mesa area is industrial. These types of uses do not usually rely on high visibility as a retail use would. The only retail use in the Study Corridor which relies on vehicular visibility is an AM/PM gas station/ mini-mart located at the intersection of Heritage and Otay Mesa Roads. Traffic volumes along this stretch of Otay Mesa Road are expected to decline once the proposed project is constructed, and would result in less visibility for the AM/PM mini-mart. This reduction in traffic volumes could negatively impact the mini-mart, however, the project interchange at Heritage Road would provide improved access and would likely offset the project bypass impact.

4.7.2 Public Finance / Fiscal Impacts

Fiscal impacts include direct and indirect effects on local jurisdictions and taxing agencies. These impacts can include displacement of public facilities or acquisition of private property for the conversion to state-owned, non-taxable right-of-way. The property tax revenues for both the City and County of San Diego would be directly affected. The direct fiscal impact for all alignment alternatives are detailed below in Table 4-3.

Table 4-3
PROPERTY TAX LOSS BY PROJECT ALTERNATIVE

Alignment Alternatives	Total Area of Take		Average Tax Collected Per		Estimated Annual Property Tax Loss	Total Study Area Property Tax	Percent of Total
	Hectares	Acres	Hectare	Acre			
Freeway* - North	108	268	\$1,620	\$656	\$176,000	\$5,170,000	3.4%
Freeway* - Central	107	264	\$1,620	\$656	\$173,000	\$5,170,000	3.4%
Freeway* - South	108	268	\$1,620	\$656	\$176,000	\$5,170,000	3.4%
Tollway – North	119	294	\$1,620	\$656	\$193,000	\$5,170,000	3.7%
Tollway – Central	114	281	\$1,620	\$656	\$184,000	\$5,170,000	3.6%
Tollway – South	119	294	\$1,620	\$656	\$193,000	\$5,170,000	3.7%

*The Freeway Alignment Alternative impacts are the same for either a full or half-diamond La Media interchange design.

These figures would represent a long-term loss of tax-generating industrial acreage on the mesa. These figures provided are for raw land, and by including the full takes an additional \$12,800 per year would be lost.

The indirect impacts include properties that are converted into small economically non-viable remnants, as a result of a partial take. The resulting indirect impacts are minimal with a tax base impact ranging from \$2,000 to \$3,000 per year.

The approved and planned developments supported by Route 905 with improved accessibility, as well as the possible relocation of displaced businesses within Otay Mesa would offset long term property tax losses. Sales tax revenues are limited within Otay Mesa, due to the types of business conducted. Based on these conclusions and assumptions, property tax and sales tax impacts would be minimal for all alignment alternatives.

4.7.3 Property Value Changes

Property value impacts are dynamic and not easily quantified. Negative impacts such as noise or visual effects are not expected to adversely affect the primarily commercial / industrial areas that are planned adjacent to the proposed project corridor. These uses are typically compatible with high traffic areas.

Positive effects on the values of existing and planned industrial and commercial properties are expected, due to better accessibility and exposure to higher traffic volumes. Positive impacts to residential property values are also anticipated. A more efficient transportation system in the area would increase the potential marketability of all properties. The higher marketability would translate into increased values, which would result in increased property tax revenues. The above impacts would be similar for all alignment alternatives. For the No Project Alternative, there would be no expected change in property values.

4.7.4 Construction Impacts

Direct expenditures on construction workers' income and purchases of materials and equipment when injected into the local economy would continue to circulate, generating additional income and sales (indirect impacts). No substantial negative impacts to nearby business are anticipated during construction. Access will be maintained using detours, although there may be some delays. Due to the limited amount of retail uses and development that are dependent on accessibility and visibility from major roads, no construction impacts as a result of the proposed project are anticipated. The majority of uses in the area are industrial, which are typically less dependent on visibility.

4.8 GROWTH EFFECTS

This analysis builds on the discussion in [Section 3.6.9](#), Growth Conditions and Management Policies. The construction of the proposed project would provide a major transportation link to a developing area. Otay Mesa's buildout would form contiguous urbanized growth along the international border stretching east to the Otay Mesa POE.

4.8.1 Growth Management Initiatives

The growth management initiatives of SANDAG's Regional Growth Management Strategy and the Governor of California stress that growth should not occur prior to the provision of adequate

infrastructure. Projections of population, housing and employment in the study area indicate rapid growth. These forecasts take into account the construction of Route 905, therefore growth resulting from Route 905 is not expected beyond what is anticipated by regional forecast models. Planned development is expected to continue until full buildout in accordance with the plans and policies of local governing agencies.

To date, development in Otay Mesa has been constrained because of the existing traffic congestion associated with Otay Mesa Road. This traffic congestion has made continued and new development opportunities on the mesa less attractive. All of the alignment alternatives (scheduled to open by 2005) would put a needed transportation corridor in place, at which time continued development would become more attractive and competitive. Approved developments within the Study Corridor would not be specifically precluded until Route 905 is built. The proposed project would, however, remove an obstacle to planned growth, representing an indirect growth-inducing impact. Although the proposed project, from a regional standpoint, would serve a sparsely developed area, Otay Mesa is slated for build-out and is geographically and strategically located to best serve the projected increases in international trade between San Diego and Tijuana.

4.8.2 Existing and Planned Land Use

Consistent with the Otay Mesa Community Plan, the mesa is slated for large-scale development. These developments consist primarily of residential development in or adjacent to the western portion of the mesa and industrial/commercial development on the remainder of the mesa (Appendix C). Development opportunities would be enhanced by the improved access within and beyond Otay Mesa, as well as the creation of new freeway interchanges. It is expected that commercial development opportunities would be enhanced at major intersection and interchange locations along Route 905, as has already occurred along areas of Otay Mesa Road. It is not likely that the City or the County would permit much greater encroachment of commercial uses onto the mesa beyond current limits of the community plan.

4.8.3 Project Alternative Impacts on Growth

The growth inducement analysis for Route 905 focuses upon the removal of obstacles to growth, as well as an analysis of increased traffic capacity. Transportation projects, which improve traffic capacity generally support higher population and employment levels in an area, to the extent allowed by local land use plans. Projections of population, housing and employment growth in the Study Area (represented by Census Tract 100.07) show that by 2015, this area will have 82,000 residents in 24,000 housing units, and almost 49,000 employees. Route 905 would facilitate this growth by serving the access needs of the area's future residents and employees.

Existing (1997) traffic volumes for Otay Mesa Road range from 2,400 to 47,600 ADT. The Freeway and Tollway Alignment Alternatives each would provide an improvement in traffic capacity over existing levels on Otay Mesa Road. By opening day, the Freeway Alignment Alternatives are forecast to serve approximately 42,000 to 87,000 ADT. Construction of any of the project alignment alternatives would remove a present constraint to the development of Otay Mesa. As shown in the Level of Service discussion in Chapter 1, the No Project would provide the strongest limitations to future growth on Otay Mesa through 2020, with area roadways operating at substandard levels of service.

4.8.4 Secondary Impacts of Growth

Route 905 would provide access to the regional transportation system for an area which is presently inadequately serviced. The development potential of this subregion is substantial and depends upon the provision of adequate infrastructure, to include transportation systems, water delivery systems, sewer facilities and public services. While growth can be facilitated by other factors such as market demand, political support and social support, the infrastructure to support economic activity must be in place for planned growth to be realized. The market attractiveness of Otay Mesa and East Otay Mesa would be limited without the provision of adequate and safe access. Therefore, the construction of Route 905 and related transportation projects would contribute to secondary, or indirect, impacts on growth in Otay Mesa and East Otay Mesa.

The potentially adverse environmental impacts from continued development/ growth are substantial and would result in loss of biological, cultural and open space resources, loss of land suitable for agriculture, and increased noise/ air pollution, and other impacts. However, several additional factors constrain unplanned growth in the Otay Mesa area. The combination of strict governance of local planning, habitat preservation requirements, and physical barriers to development (including existing developed areas to the west and south of Otay Mesa) would not allow for substantial unanticipated growth as a result of the proposed project. These indirect cumulative impacts are discussed in detail in [Section 4.22](#). It is also anticipated that these indirect cumulative impacts will be addressed through the City and County's CEQA process for each future development proposal. These potential impacts were also evaluated prior to the adoption of the Otay Mesa Community Plan and East Otay Mesa Specific Plan.

4.9 VISUAL QUALITY

4.9.1 Methodology - Impact Categories

Specific elements evaluated as part of the overall assessment of visual resource impacts include visual quality, landform quality, view quality and community character, as summarized below.

Visual quality generally concentrates on the visual organization of the environment and can be used to identify project effects that introduce a chaotic appearance, negative aesthetic condition, or a non-harmonizing change to an intact natural environment.

Landform quality deals with the topographic and/or geologic characteristics that make up the visible landform. Major grading changes or removal of unique geologic features represent potential impacts to this visual resource.

View quality is specifically limited to regionally and sub-regionally important broad views of unique features. For the project to have an effect on these views, it must either remove the view location, block the view corridor, or dramatically alter the view scene.

Community character deals with those visual resources that are identified as important landmarks or resources to the local community. This impact can also include those changes to the visual environment that may prevent the attainment of various planning, design, and/or aesthetic goals that have been adopted through a formal process such as community plans.

Levels of Impact

Four levels of impacts are used in the evaluation of the proposed alternatives. A generalized discussion of the criteria applied to each impact level follows:

1. Highly Adverse - The project would contrast highly with a high-quality visual setting; dramatically change an existing high quality landform; negatively affect community visual resources; or substantially block a sub-regionally important high quality view.
2. Moderately to Highly Adverse - The project would contrast highly with a moderate-quality visual setting or contrast moderately with a high quality visual setting, landform, visual resource or view.
3. Moderately Adverse - The project would contrast moderately with a moderate-quality visual setting, landform, visual resource or view.
4. Low or Slightly Adverse - The project would only slightly contrast with a moderate- or low-quality visual setting, landform, visual resource or view.

Key View Simulations

Visual simulations are used as an analytical tool for determining the level of contrast between a proposed project element and the existing visual environment. Contrast ratings are used to define the level of impact. Visual simulations were prepared for six candidate sensitive visual receptors based on visibility, sensitive viewer receptors, and locations where major project elements are being proposed (see [Figure 4-11](#) for view locations). Each visual simulation includes an existing conditions photograph, a computer-generated simulation of the final project without mitigation and another simulation of the project with mitigation. Each simulation also includes a contrast rating table used to show the level of impact.

The simulations include those features that are part of the proposed project, as well as any recommended mitigation. The simulations utilize the roadway geometrics of the Tollway Alignment Alternatives since they are so similar to the Freeway Alignment Alternatives and include the largest number of different project elements. The simulations therefore assume what could be termed a “worst case maximum”, and provide a tool for comparison of the other alignment alternatives. Although the South Alignment Alternative was used, the geometrics on most of the simulations would be the same regardless of the alignment alternative.

Contrast rating tables were completed for each simulation to assess the perception of the proposed project elements. A negative contrast between the post-project setting and the existing setting is the primary determining factor for impact levels. The simulations were used to represent changes that may occur in each visual character assessment unit.

4.9.2 Visual Impacts

The project would be highly visible, with major changes in existing views and landform. Vegetation removal would occur, and in some locations existing plantings would be removed. Such plantings would be replaced and new bare slopes would be planted or seeded so that

revegetation may occur. Irrigation would be required at some locations. Extensive mitigation measures are detailed below for all visual impacts.

In general, the physical elements that make up the alignment alternatives are the same in terms of impact to the visual environment. They are all expected to have a potential moderately to highly adverse impact on the visual quality of the area. Although design elements regarding road alignments and canyon crossings are different, and certain facilities are only applicable to the Tollway Alignment Alternatives (e.g., the toll plazas and toll booths), the differences among the alignment alternatives are not great enough to change the assessed level of impact. However, none of these design differences result in the reclassification of the assessed impact. Though some slight differences exist for the impact categories discussed below, the proposed alignment alternatives would have a moderately to highly adverse impact on the visual environment.

Differences in the alignment alternatives would have some effect on the overall visual impact. The South Alignment Alternative would have an impact on the visual quality of the canyon, due to the size of the proposed bridge structure. The South Alignment Alternative is expected to have a moderately adverse impact on the landform quality of the Spring Canyon area, since the bridge would allow for reduced grading of slopes with the landform relatively intact. The North Alignment Alternative is expected to have a moderately adverse landform impact. The Central Alignment Alternative would have a moderately to highly adverse landform impact due to its large amount of fill in the canyon. Since the extent of the impacts are only moderate and since the North and Central Alignment Alternatives higher landform impact are offset by the South Alignment Alternative's higher visual quality impact, the difference between the three alignment alternatives is minimal. The impact differences between the alignment alternatives would be negligible with the implementation of mitigation, including landscaping and contour grading.

Community character impacts would be minor for any of the alignment alternatives, since no design goals, policies or adopted plans (including the Otay Mesa Community Plan) indicate community resources. There are no community landmarks or identification resources in the project area. The impacts of the Route 905 alignment alternatives are summarized below and in Table 4-4, along with mitigation measures. The discussion is organized to help explain the results provided in Table 4-4. Since different views are affected at various locations along the project, the impacts are discussed in order by segment and keyview (shown on [Figure 4-11](#)).

Freeway Alignment Alternatives

West Segment

Visual Quality Impacts

The project would only have a potentially low or slightly adverse impact on the existing visual quality of this portion of the mesa. [Figure 4-12](#) shows a simulation for Keyview #1, for motorists travelling east up to the mesa-top.

Landform Quality Impacts

Moderate-sized slopes would be created; however, the overall size and contrast with the setting would be low, with potentially low or slightly adverse effects. With the inclusion of revegetation and landform contour grading, these slight impacts would not be substantial.

View Quality Impacts

Viewers on top of the mesa are sufficiently high in elevation not to be affected by any of the project improvements in this area. Future viewers (residents of planned developments), located to the south and the north, would have distant views of the ocean and San Diego Bay. These views are considered unique and important in the sub-region. The proposed project does not include sound walls at this location. Since these walls are expected to be built by the adjacent project developer, impacts from the Route 905 project would not occur. The developer would be responsible for any mitigation.

Middle Segment – West of Caliente Boulevard – All Alignment Alternatives

This portion of the project would have approximately the same location and design, regardless of alignment alternative. [Figure 4-13](#) shows a simulation of Keyview #2, for westbound motorists in this segment.

Visual Quality Impacts

The project would create a moderate contrast with the visual quality of the area. This potential moderately adverse impact is due to grading, vegetation removal and extensive amounts of paving and other physical improvements that would change the character of the existing mesa edge and mesa top visual character units. Grading and construction would necessitate the removal of 10 to 20% of the eucalyptus trees found in a grove at the crest of the hill (see [Figure 4-13](#)). This applies to all alignment alternatives. With re-vegetation and tree replacement in the immediate area of the grove at a 5:1 ratio, these impacts would be mitigated. Above-standard landscape treatments are proposed.

Landform Quality Impacts

There would be a moderately to highly adverse effects on the landform quality of the area. An extensive volume of grading would occur, but these graded slopes would be visible to motorists and residents in planned developments. The proposed curve and depressed grade of the project would limit the number of residential viewers. Grading at the crest of the hill west of Caliente Boulevard would be moderately adverse to the landform of the area, because a cut slope located along the westbound travel lanes at the crest of the hill would be highly visible to motorists and planned adjacent residents.

View Quality Impacts

Several important or unique views occur from and through this segment. Views originating on top of the mesa (as seen by existing drivers on Otay Mesa Road) are sufficiently high in elevation to be unaffected by any project features. Therefore, no view quality impacts are expected.

Middle Segment – From Caliente Boulevard to the East Segment – North Alignment Alternative*Visual Quality Impacts*

This portion of the project, between Caliente Boulevard and slightly beyond Britannia Boulevard (to the edge of the East Segment), is expected to have only a slightly adverse impact on existing visual quality. Please refer to [Figure 4-14](#); the tollway facilities would be absent for the Freeway Alignment Alternative (simulation for Keyview 3).

Vegetation changes in the Spring Canyon area immediately west of the Heritage Road interchange would potentially have a moderately adverse effect on visual character. These changes are likely to entail an initial change from primarily native communities to ruderal (non-native) grasslands. The impact is considered only slightly adverse since the existing viewer group in the area is small and would have limited visibility. After a 5-7 year period, revegetation is likely to blend the disturbances back into its existing setting, though landform alterations would still be noticeable. Above-standard landscape materials and design are proposed. A moderately to highly adverse impact would occur if noise walls are added at Cactus Road, because of the number of viewers (existing residential properties), and the high visibility of the walls. Walls along both north- and south-sides of the project would affect highway viewers and residents. The smaller half-box wall option (where walls wrap around the three affected residences) would have only a moderately adverse effect. These impacts apply to all alignment alternatives.

Landform Quality Impacts

Landform changes are considered moderately adverse, since the head of Spring Canyon is expected to be filled and the landform character of the canyon permanently changed. Though the contrast can be limited through revegetation and contour grading, this segment of the North Alignment Alternative would result in a permanent landform change to an existing naturally formed canyon.

View Quality Impacts

This portion of the middle segment contains no view quality impacts. However, with the addition of noise walls at Cactus Road, a moderately to highly adverse view quality blockage would occur to residents and highway viewers.

Middle Segment – From Caliente Boulevard to the East Segment – Central Alignment Alternative

All impacts discussed under the North Alignment Alternative, above, would be the same as those for the Central Alignment Alternative, except for the following difference: Since this alignment alternative would disturb more of Spring Canyon, a moderately adverse visual quality impact would occur. This alignment alternative would have a moderately to highly adverse (instead of moderately adverse) effect on the existing canyon landform, due to the greater extent of fill and the height of slopes. Above-standard landscaping and landform contour grading are proposed to minimize this impact.

Middle Segment – From Caliente Boulevard to the East Segment –South Alignment Alternative

All impacts listed under the North Alignment Alternative, would also occur with the South Alignment Alternative, except for select differences. The South Alignment Alternative would have a potential moderate visual quality effect as a result of the bridge over Spring Canyon. The addition of a large concrete structure would be noticeable and would contrast with the natural setting. The bridge may also be subject to graffiti, further lowering aesthetic quality. The number of potential viewers, however, is expected to be low. This alignment alternative would potentially have a moderately adverse effect on the canyon landform. The bridge abutments would encroach into the canyon and contrast moderately with the landform. Abutment fill would not be highly noticeable. Bridge enhancements would be proposed to lessen the impact upon the limited viewer groups found in adjacent areas.

Table 4-4
SUMMARY OF VISUAL IMPACTS AND MITIGATION MEASURES

	Visual Quality	Landform Quality	View Quality	Community	Impacts Notes	Composite Impact Before Mitigation	Mitigation Required	Special Mitigation Notes	Composite Impact After Mitigation
PROJECT ALIGNMENT ALTERNATIVES									
Freeway and Tollway Alignment Alternatives (Impacts are the same)									
West Segment	L	L	M H	L		L	2,3,6	Sound walls, if built by Caltrans, will consider see-thru panels	L
Middle Seg./All Align. West of Caliente	M	MH	L	L		M	1,2,3,6,	Plant new trees for lost eucalyptus trees & contour grade	L
Middle Seg./North Align. East of Caliente	L	M	L	L		L	1,2,4, 6	Replace native vegetation in canyon and contour grade	L
Middle Seg./Central Align. E. of Caliente	M	MH	L	L		M	1,2,4,6	Replace native vegetation in canyon	L
Middle Seg./South Align. E. of Caliente	M	M	L	L		M	1,2,4,6	Replace native veg. in canyon, upgrade bridge aesthetics	L
East Segment	MH	MH	L	M		MH	1,2,4,5,6	Improve POE aesthetics/upgrade landscape, walls & bridges	L
La Media ½ Diamond Interchange	L	L	L	L	No visual difference between ½ and full	L	3	Only standard revegetation required	L
Summary Impact for Freeway/Tollway	MH	MH	M	L	OVERALL COMPOSITE IMPACT:	MH	OVERALL COMPOSITE IMPACT AFTER MITIGATIONS:		L
Cumulative Impacts	C	C	L	L	Development increases landform/visual impacts	L	1,2,3	Coordination of design/ grading to match landforms	L
No Project Alternative	L	L	L	L		L			L

LEGEND**IMPACT CATEGORY**

H Highly Adverse
MH Moderately to Highly Adverse
M Moderately Adverse
L Low or Slightly Adverse/No Effect
C Cumulatively Adverse

MITIGATION

1 Add landscape screening/buffering
2 Incorporate landform (contour) grading
3 Standard revegetation for erosion control and blending with adjacent vegetation
4 Upgrade landscape treatments above standards
5 Upgrade design elements such as fencing, lighting and signage
6 Improve aesthetics of element by incorporating art in architecture or other change in form, color or texture

East Segment

Visual Quality Impacts

The eastern half of the existing mesa top and the urban visual character units is considered to have moderate visual quality and sensitivity to change. Please refer to [Figure 4-15](#) and [Figure 4-16](#) (simulations for Keyviews 5 and 6). Bridges, interchanges, overpasses and large abutment slopes would all contribute to changes in the character of this area. A number of cast-in-place concrete retaining walls would be built, with resulting visual quality impacts. These walls would range in length from approximately 80 meters (260 feet) to 400 meters (1,300 feet), and would be between 1.2 meters (4 feet) and 6.5 meters (21 feet) in height.

The existing gateway and streetscape settings that occur immediately to the north of the POE would be permanently changed and the project elements would contrast highly with this setting. This change is even more dramatic because of the high number of viewers to and from the POE and their heightened expectation of the border crossing experience. Based on a review of the visual quality impact threshold criteria, moderately to highly adverse visual quality impacts are expected to occur in the east segment. Special design measures addressing signage, lighting, bridge architecture, landscape plantings and median configurations will be incorporated.

Landform Quality Impacts

Much of the grading in this area is expected to be limited to roadbed preparation and would not generate substantial cut or fill slopes. A major portion of this segment, however, along the proposed local access road to Enrico Fermi Drive, would involve the movement of up to 380,000 cubic meters (500,000 cubic yards). Though the amount of earth movement would be substantial, the cut and fill slopes would be of moderate steepness (6:1) and would be contour graded. Also the Route 905/ SR-125 and Siempre Viva interchange ramps would have substantial fill slopes. A potential moderately to highly adverse impact to the existing landform of the area would result.

View Quality Impacts

Existing views occur through portions of the east segment including distant views of Otay Mountain to the east and the San Miguel Mountains to the north. These views would also occur along the majority of Route 905. The duration of the view blockage of these mountains for drivers on proposed Route 905 would be only for a few seconds, and is not considered adverse.

Community Character Impacts

Although no community character impacts would occur, the POE is a major focal point for the community. A gateway opportunity exists here as a result of the international border crossing, the large number of existing and future viewers, and the viewers' high expectation level for an entry area with a good first impression. Since an impact can occur from a project that may affect the ability of a community to meet design goals, a moderately potentially adverse community design impact would occur under FHWA guidelines. Special design measures would minimize this impact and enhance the gateway.

Half Diamond La Media Interchange Design Option

Since no impacts are associated specifically with any of the proposed interchange improvements, the Half Diamond versus Full Diamond Interchange options would have no effect on any visual

impacts. Project elements would neither remove important visual resources nor negatively contrast with the existing setting.

Utility Relocations

Utility relocations would occur within the project's disturbance limits (footprint). All existing overhead power lines, which would be relocated consist of distribution lines with wooden poles. These poles have a height of approximately six to eight meters (20 to 25 feet). No impacts to views would arise from the relocation of overhead power lines.

Tollway Alignment Alternatives

Impacts are similar to those documented in the discussion of the Freeway Alignment Alternatives. Minor differences relate to the slightly larger footprint and more facilities, such as toll plazas, which makes this alignment alternative slightly higher in visual impact potential. However, due to the current visual environment, the larger footprint and the toll facilities can easily be absorbed into the visual setting without noticeable contrasts. The differences compared with the Freeway Alignment Alternatives are inconsequential and do not change the impact rating.

Expressway Staging Option [Presented for informational purposes only]

The Expressway Staging Option would include the same right of way as the Freeway Alignment Alternatives (i.e. sufficient to accommodate up to eight freeway lanes), and would have a design identical to the Freeway Alignment Alternatives, west of Caliente Boulevard. The Expressway Staging Option is only considered as an interim stage of the Freeway Alignment Alternative. East of Caliente Boulevard, however, this staging option would narrow to four lanes and would include several at-grade, signalized intersections instead of the grade-separated interchanges included as part of the Freeway Alignment Alternatives. Due to the narrower roadway width east of Caliente Boulevard, portions of the proposed right of way, on an interim basis only, would not be disturbed during expressway construction.

The East Segment under this staging option is similar to that described for the Freeway Alignment Alternatives. However, the Expressway Staging Option would not include interchanges at La Media Road and Route 125, nor the local connector road to Enrico Fermi Drive. It would therefore not include the movement of 380,000 cubic meters (500,000 cubic yards) of earth or the construction of tall retaining walls at Sanyo Avenue.

No Project Alternative

No visual impacts would result from the No Project Alternative. However, the recommended improvement in layout and design immediately north of the POE would not occur.

4.9.3 Mitigation Measures

Revegetation Measures

Removal of mature eucalyptus trees from the grove at the project's west end would be mitigated by extensive planting. Five trees will be planted for each tree removed. This ratio is justified

given the fact that the very large mature trees that will be lost could not be visually replaced with smaller container plant material. Sycamores, alders, willows, oaks, or other indigenous trees are recommended as the most appropriate trees to plant. The disturbed slopes at the crest of the hill, and the abandoned Otay Mesa Road segment (within the project footprint) would be the most likely locations for this tree replacement mitigation. Care will be taken to avoid planting trees in areas where westbound drivers currently have a distant ocean view (generally at the crest of the hill prior to heading down to I-805).

Graded and disturbed slopes will be planted with appropriate vegetation in conjunction with erosion control plans. A combination of native seed and naturalized seed may be necessary to provide appropriate cover and protection from erosion during the establishment periods. Native habitat will be restored adjacent to Route 905 within the MHPA, and in the canyon at the west end. Non-native seed mixes and shrubs may be used along other portions of the alignment alternatives. The final seed mix design will be developed by the District Landscape Architect and District Biologist. Neither a non-irrigated hydroseed mix nor straw are considered adequate for the purposes of erosion control and visual mitigation. Supplemental water through an irrigation system would be required to assure establishment. This is also the case for all plantings. Revegetation of canyon slopes will emphasize the canyon bottom with riparian species of trees such as sycamore, alder, willow and cottonwood. Upper slopes will mimic adjacent species and include shrub masses in a similar form and density as found on adjacent slopes. Trees and shrub masses will be used to help meander the appearance of slopes, screen bridges/ abutments and walls.

Above-standard landscape treatments are proposed east of Caliente Boulevard. Native and drought-tolerant plants/ shrubs will be considered. Trees will be massed in low points along the right of way de-emphasize adjacent slopes. Though not considered as above standard landscape treatments, the median should contain a combination of native/ naturalized grasses and flowers. Above-standard plantings are proposed for all canyon fills and grading to help blend the disturbance back into the native slopes.

Measures for Landform, Drainages and Walls

Mitigation for landform changes will include an effort at rounding slopes (toe, top and ends), blending slopes back into the natural landform, and providing a variation in slope steepness and extent. Slight variations in final surface form, the avoidance of flat-topped fill slopes, and the elimination of a constant grade (with less than 10% variation in height and slope angle) cut slopes would mitigate this impact. Head-of-canyon fills will be concave in appearance and will contain intermediate forms within the slope face.

Any required brow ditches and other drainage structures will be screened by vegetation. Design of drainages will consider use of other materials rather than concrete (such as geo-fabric or vegetation); if concrete is required for hydraulic reasons, it will be stained to lower the reflectivity and decrease the contrast with the color, tone, and texture of the adjacent undisturbed areas.

The impacts associated with retaining or noise walls will be reduced with the addition of split-face block worked into interesting geometric patterns with the precision cut block. The planting of vines will also minimize graffiti and reduce the monotonous surface by adding color and

texture. Anti-graffiti treatment will also be needed on these walls. For walls greater than two-meters (six-feet) in height, walls with surface variations should be used.

Special Measures for the Port of Entry Area

[Figure 4-16](#) provides three possible mitigation concepts for this area. Existing mature trees (especially palms) at the border crossing will be relocated. Where transplanting cannot take place, a 5 to 1 replacement ratio of large specimen trees would be used. These trees should be a minimum 61-centimeter (24-inch) box size and would require irrigation. Landscape treatments in the adjacent right-of-way will be of a much higher quality than standard highway planting. The slopes leading up to the abutment of Siempre Viva Road bridge require a higher level of landscape treatment, including planting of specimen trees such as cottonwood, poplar, tipu, sycamore, alder, or oak. Well-coordinated and visually unique light pole standards with the potential of flags or banners will be included. Special architectural treatments of the Siempre Viva Road bridge will be included. This bridge represents an important gateway to the United States, and due to its position and visibility, it should make a positive design statement. Such treatments could include a recessed inlay to add aesthetic value. The inlay, the bridge abutments and fencing (colored, vinyl-coated) should all relate geometrically, in form and in color. A special “Welcome to the United States” or “Welcome to California” sign and gateway structure should be placed immediately inside the border of the United States. Either an entry sign or overhead structure should be constructed.

An overall concept plan, and design details, will be developed by the District Landscape Architect. Coordination with responsible agencies and community groups regarding design treatments will occur. These treatments should increase the aesthetic appearance of this area and create a gateway design statement for the POE. The maximum allowable use of plant material should be used in the median. If large trees are not allowed, then palms or a comparable alternative should be used. Though standard medians may not be plantable based on current standards, exceptions will be made for this unique POE opportunity.

4.10 BIOLOGICAL RESOURCES

The data used in this EIS/ EIR and in the Biological Resources Technical Report were collected from various sources, including biology surveys of the study area. Focused surveys were conducted for the following sensitive plant and animal species: fairy shrimp (*Branchinecta* and *Streptocephalus* spp.), coastal California gnatcatcher (*Polioptila californica californica*), San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegense*), quino checkerspot butterfly (*Euphydryas editha quino*), orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), and several plant species associated with vernal pool habitat. Additional observed sensitive species, vegetation communities, vernal pools, and coastal California gnatcatcher territories were also mapped, and a federal wetland delineation was completed for the entire Route 905 Study Corridor. Avoidance and minimization of biological impacts has been a major consideration throughout the process of developing project alignment alternatives (as discussed in [Section 2.3](#)).

The U.S. Fish and Wildlife Service (USFWS) has determined that surveys conducted for the Quino checkerspot butterfly in 1997, 1998 and 1999 flight seasons are acceptable (meeting on February 3, 1999 – Sherry Barrett, USFWS).. The results of the surveys were negative (no

butterflies were found); however, as described in [Section 3.8.2.2](#), a Quino was found in March 2001.

4.10.1 Direct Impacts

This section includes a discussion of impacts common to all alignment alternatives, followed by a discussion of impacts specific to each alternative. The direct impacts of project construction are summarized below and in Tables 4-5 through 4-8. Impact areas are provided in hectares and acres, and are provided at the level of accuracy (without rounding) which the detailed GIS analysis yielded. With jurisdictional impacts, a high level of accuracy is required and rounding is not advised. It must be noted, however, that maps are in reality not accurate within hundredths of a hectare (acre), although the numbers provided may imply such accuracy. Also, where differences between alignment alternatives are slight, the GIS-derived numbers in hundredths do facilitate comparison. The data in Table 4-5 are broken down by project alignment alternative and staging option. Data in Tables 4-6 and 4-7 apply to the alignment alternatives, and are intended to provide an overview of the sensitive species impacts.

Impacts and Issues Common to All Six build Alignment Alternatives

All build alignment alternatives impact habitat supporting larval host plant (i.e., *Plantago erecta*) and adult nectar plants potentially occupied by the Quino checkerspot butterfly. A “freshly emerged” adult female Quino was found in an area crossed by both the North and Central Alignment Alternatives, just west of Heritage Road. Additional surveys planned in Spring 2002 may provide further data regarding distribution of the species within the Study Corridor.

Regardless of the project alignment alternative, impacts to vernal pools, riparian and wetland habitats (riparian scrub, open water, disturbed wetland, and freshwater marsh), coastal sage scrub, or federally-listed endangered or threatened species would require mitigation in accordance with federal and state regulations. The MSCP requires mitigation for various habitats, including annual grassland. The vegetation impacts for all of the alignment alternatives are shown on [Figure 4-17](#), [Figure 4-18](#), [Figure 4-19](#), [Figure 4-20](#) and [Figure 4-21](#). An enlargement of vegetation impacts within the central portion of the Study Corridor, where the alignment alternatives diverge, is provided on [Figure 4-18B](#) and [Figure 4-19B](#).

Sensitive Plant Species impacts are illustrated on [Figure 4-25](#), [Figure 4-26](#), [Figure 4-27](#) and [Figure 4-28](#), and summarized in Table 4-6. One population of variegated dudleya (approximately 30 individuals) would be impacted by all alignment alternatives. This impact is outside the MHPA and is considered minor due to the small size of the impact. However, variegated dudleya is a narrow endemic species and will be protected through avoidance, management, enhancement, and/or transplantation.

Sensitive Animal Species impacts are provided on [Figure 4-26](#) and [Figure 4-27](#), and summarized in Table 4-7. The eucalyptus plantation that would be impacted supports a raptor nest, which may or may not be active when the project is constructed. Direct impacts to the raptor nest due to removal or construction noise will not be allowed if the nest is active at the time of construction, pursuant to requirements of the Federal Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code.

Wetlands and Riparian Habitat: Jurisdictional Impacts

Jurisdictional impacts would occur for all alignment alternatives. The ACOE regulates all isolated and linear wetlands and non-vegetated Waters of the U.S., as defined by established criteria of hydrology, soils, and vegetation. The California Department of Fish and Game (CDFG) regulates streambeds and wetland habitats. The ACOE and CDFG jurisdictional areas often overlap, but they are usually quite different in size. Impact areas for each of these jurisdictional bodies are summarized in Table 4-9. Impacts to CDFG jurisdiction require a Streambed Alteration Agreement (Fish & Game Code Section 1601), while impacts to ACOE jurisdiction require a Clean Water Act Section 404 permit. Impacts to ACOE jurisdictional areas are provided in area (hectares/acres) and drainage length (meters/feet) for permitting purposes. ACOE jurisdictional impact areas are provided on [Figure 4-29](#), [Figure 4-30](#), [Figure 4-31](#) and [Figure 4-32](#).

For areas under ACOE jurisdiction, the North Alignment Alternative would impact 0.50 hectare (1.25 acres), the Central Alignment Alternative 0.20 hectare (0.49 acre), and the South Alignment Alternative 0.15 hectare (0.37 acre). Impacts to linear drainage features differ among the alignment alternatives, but only two alignment alternatives (north and central) would impact at least 152.4 meters (500 feet) of one drainage. The South Alignment Alternative, unlike the North and Central, could therefore potentially avoid the need for an individual Section 404 permit, depending upon the impacts to vernal pools. CDFG jurisdictional areas would be impacted as follows: 1.25 hectares (3.09 acres) for the North Alignment Alternative, 0.91 hectare (2.26 acres) for the Central Alignment Alternative, and 0.83 hectare (2.05 acres) for the South Alignment Alternative. The above numbers are for all alignment alternatives, and are provided to illustrate relative differences in impacts for the alignment alternatives.

Vernal Pools and Sensitive Vernal Pools Species

Vernal pools are impacted under all alignment alternatives. Based on two seasons of protocol surveys, the Riverside fairy shrimp does not occur within any of the impacted pools. These numbers are for the Freeway Alignment Alternatives (See Table 4-5 for all alignment alternatives). The North Alignment Alternative impacts 0.05 hectare (0.13 acre; 11 pools) of vernal pools. The North Alignment Alternative would create direct impacts to San Diego fairy shrimp (federally endangered) in three vernal pools and one standing water pool, San Diego button-celery (state and federally endangered), and spreading navarretia. The South Alignment Alternative impacts 0.03 hectare (0.08 acre, 8 pools) of vernal pool habitat. The South Alignment Alternative would create direct impacts to two vernal pools supporting San Diego fairy shrimp. San Diego fairy shrimp occur in standing water pools on the North (one pool) and South (one pool) Alignment Alternatives. The South Alignment Alternative also impacts portions of three vernal pool watersheds supporting a vernal pool complex (10 pools) and two individual pools. The 10 pools in this complex support sensitive plants of high sensitivity, including Otay Mesa mint (federally and state endangered), Otay tarplant (federally threatened and state endangered), spreading navarretia and a pool with San Diego fairy shrimp. The pools impacted by the Central Alignment Alternative do not support sensitive vernal pool species. The Central Alignment Alternative impacts the least vernal pool habitat (0.008 hectare [0.02 acre]; 3 pools). The Central Alignment Alternative affects only one standing water pool with the San Diego fairy shrimp.

Table 4-5
SUMMARY OF VEGETATION COMMUNITY IMPACTS HECTARES (ACRES)*

	FREEWAY ALIGNMENT ALTERNATIVE			TOLLWAY ALIGNMENT ALTERNATIVE			EXPRESSWAY STAGING OPTION (Presented for Informational Purposes Only)		
VEGETATION COMMUNITIES	North	Central	South	North	Central	South	North	Central	South
Vernal pool	0.05 (0.13)	0.008 (0.02)	0.03 (0.08)	0.05 (0.13)	0.008 (0.02)	0.03 (0.08)	0.05 (0.13)	0.008 (0.02)	0.03 (0.08)
Diegan coastal sage scrub	3.01 (7.4)	5.6 (13.8)	5.08 (12.6)	3.28 (8.1)	5.87 (14.5)	5.35 (13.2)	3.01 (7.4)	5.6 (13.8)	5.08 (12.6)
Diegan coastal sage scrub - disturbed	0.74 (1.8)	0.79 (1.9)	3.25 (8)	0.74 (1.8)	0.79 (1.9)	3.25 (8.0)	0.74 (1.8)	0.79 (1.9)	3.25 (8)
Freshwater marsh**	0.31 (0.78)	0.274 (0.68)	0.27 (0.67)	0.31 (0.78)	0.274 (0.68)	0.27 (0.67)	0.31 (0.78)	0.274 (0.68)	0 (0.0)
Riparian scrub**	1.36 (3.36)	1.33 (3.27)	1.27 (3.13)	1.36 (3.36)	1.33 (3.27)	1.27 (3.13)	0.95 (2.32)	0.91 (2.23)	0.26 (0.65)
Unlined flood channel/streambed	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.38 (0.94)	0.02 (0.05)
Disturbed wetlands**	0.05 (0.13)	0.05 (0.13)	0.07 (0.18)	0.05 (0.13)	0.05 (0.13)	0.07 (0.18)	0.05 (0.13)	0.05 (0.13)	0.07 (0.18)
Open water**	0.38 (0.93)	0.12 (0.29)	0.07 (0.18)	0.35 (0.86)	0.11 (0.28)	0.07 (0.18)	0.38 (0.93)	0.12 (0.29)	0.07 (0.18)
Standing water	0.002 (0.004)	0.004 (0.01)	0.02 (0.05)	0.002 (0.004)	0.004 (0.01)	0.02 (0.05)	0.002 (0.004)	0.004 (0.01)	0.02 (0.05)
Eucalyptus woodland	0.17 (0.4)	0.17 (0.4)	0.17 (0.4)	0.12 (0.3)	0.17 (0.4)	0.17 (0.4)	0.12 (0.3)	0.12 (0.3)	0.12 (0.3)
Annual grassland	32.5 (80.2)	32.5 (80.2)	32.5 (80.2)	33.02 (81.4)	33.02 (81.4)	33.02 (81.4)	8.03 (19.7)	8.03 (19.7)	8.03 (19.7)
Agriculture	66.37 (164)	66.09 (163.3)	66.25 (163.7)	67.29 (166.3)	67.69 (167.3)	67.81 (167.5)	65.93 (162.9)	65.64 (162.2)	65.8 (162.6)
Disturbed area	66.8 (165.2)	63.79 (157.8)	62.58 (154.8)	70.88 (175.3)	66.71 (165.0)	65.42 (161.8)	51.10 (126.2)	48.77 (120.5)	46.88 (115.8)
Developed area	51.81 (128)	51.82 (128)	51.53 (127.3)	52.39 (129.5)	52.28 (129.2)	52.01 (128.5)	44.69 (110.4)	44.69 (110.4)	44.41 (109.7)
TOTAL (hectares)	223.93	222.93	223.47	230.22	228.69	229.14	175.74	157.34	175.25
(acres)	553.27	550.74	552.23	568.90	565.03	566.04	433.93	388.80	432.89
Vernal pool watershed***	0	0	0.27 (0.65)	0	0	0.27 (0.65)	0	0	0.27 (0.65)

* Impact areas identified for the North, Central and South Alignment Alternatives include impacts for the East, Middle and West segments.

** These habitats are CDFG jurisdictional areas.

***Watershed impacts are a subset of other vegetation community impacts, and are therefore not included in the above total. In addition, watershed impacts are only shown for cases where pools in the watershed would not be impacted.

All impact areas are approximate.

ACOE and CDFG jurisdictional areas, standing water and unlined flood channel/streambed are reported to the nearest hundredth or thousandth, as required by the jurisdictional areas are reported to the nearest tenth, which is the maximum level of accuracy for these measurements.

Table 4-6
ROUTE 905 ALIGNMENT ALTERNATIVE IMPACT SUMMARY FOR
SENSITIVE PLANT SPECIES¹

	North Alignment Alternative		Central Alignment Alternative		South Alignment Alternative	
Sensitive Plant Species	Impact₁	Impact Level	Impact₁	Impact Level	Impact₁	Impact Level
Federally Endangered						
Otay Mesa mint	0 (0)	NC	0 (0)	NC	1 (630) ³	PA
San Diego button-celery	1 ²	PA	0 (0)	NC	0 (0)	NC
Federally Threatened						
Otay tarplant	0 (0)	NC	0 (0)	NC	1 (700) ³	PA
Spreading navarretia	1 ²	PA	0 (0)	NC	1 (30) ³	NC
Additional Sensitive Species						
Ashy spike-moss	1 ²	NA	2 ²	NA	4 ²	NA
Cliff spurge	2 (45)	NA	2 (45)	NA	2 (45)	NA
Little mouseltail	0 (0)	NC	0 (0)	NC	1 ^{2,3}	NC
Orcutt's bird beak	1 (130)	NA	1 (130)	NA	1 (130)	NA
San Diego barrel cactus	1 (53)	NA	7 (95)	NA	6 (133)	NA
San Diego bur-sage	1 (20)	NA	3 (145)	NA	2 (100)	NA
San Diego County needlegrass	1 ²	NA	1 ²	NA	5 ²	NA
San Diego sunflower	3 (80)	NA	8 ²	NA	2 (100)	NA
Southwestern spiny rush	0 (0)	NC	0 (0)	NC	0 (0)	NC
Variegated dudleya	1 (30)	NA	1 (30)	NA	1 (30)	NA
Western dichondra	0 (0)	NC	0 (0)	NC	0 (0)	NC

¹ Entries in table follow this format: number of separate stands or populations (number of individuals). The impact levels are coded as follows: NA – Not Adverse; NC – No Change; PA – Potentially Adverse (NOTE: The impact is considered potentially adverse prior to mitigation, if it affects a federal or state listed species)

² Number of individuals not quantified

³ Not direct impacts; impacted indirectly through impacts to vernal pool watershed.

Impacts to the San Diego fairy shrimp, due to its formal listed status (federally endangered), will require an Endangered Species Act (ESA) Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS). It is expected that the vernal pool mitigation program would also mitigate the impacts to the shrimp.

Mima Mound Complexes and Topography

Although mima mounds occur within the Route 905 Study Corridor, their current distribution is not clearly correlated to the distribution of the vernal pools. This is a common situation in San Diego County (The Ecology of Southern California Vernal Pools: A Community Profile, Biological Report 85(7.11), Fish and Wildlife Service). Historically, vernal pools may have been common in depressions between mima mounds, but due to extensive ground disturbance vernal pools are now, for a large part, remnant depressions along roads or in other man-made depressions. Adjacent to and within most of the vernal pools within the Study Corridor, mima

mound relief is absent or has been extensively altered by ground activities such as agriculture and off-road vehicle use. However, mounded topography is present on several of the finger ridges between tributary canyons to Spring Canyon.

Table 4-7
ROUTE 905 ALIGNMENT ALTERNATIVE IMPACT SUMMARY FOR
SENSITIVE ANIMAL SPECIES¹

	North Alignment Alternative		Central Alignment Alternative		South Alignment Alternative	
	Impact ₁	Impact Level	Impact ₁	Impact Level	Impact ₁	Impact Level
Federally Endangered						
Riverside fairy shrimp	LH (0)	NC	LH (0)	NC	LH (0)	NA
San Diego fairy shrimp	LH (4)	PA	LH (0)	PA	LH (2)	PA
Federally Threatened						
Coastal California gnatcatcher	LH (1) ²	PA	LH (2) ²	PA	LH (2) ²	PA
Additional Sensitive Species						
Burrowing owl	LH (0)	NA	LH (0)	NA	LH (0)	NA
Black-crowned night heron	LH (1)	NA	LH (1)	NA	LH (1)	NA
Cooper's hawk	LH (0)	NA	LH (0)	NA	LH (0)	NA
California horned lark	LH (0)	NA	LH (1)	NA	LH (1)	NA
Golden eagle	LH (0)	NA	LH (0)	NA	LH (0)	NA
Great egret	LH (1)	NA	LH (1)	NA	LH (1)	NA
Loggerhead shrike	LH (1)	NA	LH (1)	NA	LH (1)	NA
Northern Harrier	LH (0)	NA	LH (0)	NC	LH (1)	NA
Orange-throated whiptail	LH (1)	NA	LH (1)	NA	LH (1)	NA
San Diego black-tailed jackrabbit	LH (1)	NA	LH (2)	NA	LH (2)	NA
Southern California rufous-crowned sparrow	LH (0)	NA	LH (0)	NA	LH (2)	NA
Western spadefoot	LH (0)	NA	LH (0)	NA	LH (0)	NA
White-tailed kite	LH (1)	NA	LH (1)	NA	LH (1)	NA
Yellow-breasted chat	LH (0)	NA	LH (0)	NA	LH (0)	NA

¹ Impact levels are coded as follows: LH - Loss of Habitat, numbers indicate individuals observed in alignment; NA - Not Adverse; NC - No Change; PA - Potentially Adverse (Note: the impact is considered potentially adverse prior to mitigation, if it affects a federal or state listed species)

² Numbers for gnatcatcher represent pairs of birds; for other species numbers are sightings within impact area.

Mima mound/ vernal pools complexes are present only within an area of about 81 hectares (200 acres) southwest of Heritage Road/Otay Mesa Road and southwest of Old Otay Mesa Road/ Otay Mesa Road. The watersheds for each vernal pool contain mima mound topography within them. A vernal pool restoration site (Pardee), fenced and gated, is within both the North and Central Alignment Alternatives. Table 4-8 below summarizes the area of impacts for all alignment alternatives.

Table 4-8
IMPACTS TO VERNAL POOL AND MIMA MOUND COMPLEXES BY PROPOSED ALIGNMENT¹

Alignment Alternative ⁵	Number of vernal pool(s) impacted by alignment	Affected vernal pool watersheds supporting mima mounds (listed by number)	Hectares (acres)	Additional impacts to OCCS vernal pool restoration property hectares (acres) ⁶
North	4 ²	43 ²	0.01 (0.04) ⁴	1.50 (3.7)
Central	2	43, 47	0.05 (0.12) ⁴	0.2 (0.50)
South	5	32, 34 ³ , 43, 47	0.30 (0.74)	0 (0)

¹Vernal pool number 53 (Helix 1999) has been destroyed and is not counted in the total.

²Three mapped vernal pools do not have a watershed with mima mound topography due to surrounding human disturbance

³About 50% of the watershed supporting mima mounds for vernal pool number 34 (Helix 1999) is within the alignment.

⁴Three pools within the Otay Corporate Center South (OCCS) mitigation site are not counted in the total. The watersheds of these pools total 0.30 hectares (0.75 acre). The Corps 404 jurisdiction would be examined during concurrence determination with ACOE if these areas are actually proposed to be impacted.

⁵This comparison is applicable to alignment alternatives.

⁶These totals include non-vernal pool/mima mound areas.

Mima mound/ vernal pool complexes occur within all of the alignment alternatives but only in two restricted areas. Assuming the Pardee restoration area continues to be non-jurisdictional, the North and Central Alignment Alternatives impacts are both under the 0.1 hectare (0.25-acre) limit required for a Corps Nationwide Permit under the new conditions. The South Alignment Alternative would impact 0.3 hectares (0.74 acres) and exceed the proposed limit.

Coastal Sage Scrub and Gnatcatchers

All build alignment alternatives impact coastal sage scrub potentially occupied by the coastal California gnatcatcher, which is federally listed as threatened. Impacts to the gnatcatcher would be addressed by a Section 7 consultation with the USFWS, and are expected to be mitigated by the coastal sage scrub mitigation proposed as part of this project.

Coastal sage scrub (CSS) would be impacted to the greatest extent by the South Alignment Alternative (8.33 hectares [20.6 acres]) and to the least extent by the North Alignment Alternative (3.75 hectares [9.2 acres]). The Central Alignment Alternative would impact 6.39 hectares (15.7 acres). These numbers are for the Freeway Alignment Alternatives. The North Alignment Alternative impacts would be closest to Otay Mesa Road and existing development. The Central Alignment Alternative impacts would cut diagonally across a tributary of Spring Canyon, accounting for the increased impact to CSS. The South Alignment Alternative extends across Spring Canyon, impacting a wider belt of CSS. The North and Central Alignment Alternatives would impact a portion of the OCCS preserve (the north bisects the preserve, while the central impacts the southwest corner of the preserve).

Table 4-9
SUMMARY OF WATERS OF THE U.S./ CDFG JURISDICTIONAL IMPACTS*

JURISDICTIONAL IMPACT AREAS	FREEWAY ALIGNMENT ALTERNATIVES						TOLLWAY ALIGNMENT ALTERNATIVES						EXPRESSWAY STAGING OPTION (Presented for Informational Purposes Only)					
	North		Central		South		North		Central		South		North		Central		South	
	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac
Non-vegetated waters of the U.S. ¹	0.33	0.82	0.105	0.26	0.048	0.12	0.307	0.76	0.109	0.27	0.052	0.13	0.327	0.81	0.101	0.25	0.044	0.11
Wetlands ¹	0.146	0.36	0.077	0.19	0.069	0.17	0.142	0.35	0.077	0.19	0.069	0.17	0.081	0.20	0.012	0.03	0.004	0.01
Vernal Pools ¹	0.053	0.13	0.008	0.02	0.032	0.08	0.053	0.13	0.008	0.02	0.032	0.08	0.053	0.13	0.008	0.02	0.032	0.08
Mima Mound Topography ¹ (not including vernal pools)	0.014	0.035	0.047	0.118	0.298	0.744	0.014	0.035	0.047	0.118	0.298	0.744	0.014	0.035	0.047	0.118	0.298	0.744
Total Jurisdictional Area ¹	0.53	1.31	0.19	0.47	0.149	0.37	0.502	1.24	0.194	0.48	0.153	0.38	0.461	1.14	0.121	0.30	0.080	0.20
Linear Features Impacts ²	M	Ft	M	Ft	M	Ft	M	Ft	M	Ft	M	Ft	M	Ft	M	Ft	M	Ft
Drainage 1 ²	21	69	21	69	21	69	21	69	21	69	21	69	21	69	21	69	21	69
Drainage 2 ²	271	891	458	1505	138	455	271	891	459	1505	138	455	271	891	458	1505	138	455
Drainage 3 ²	30	100	30	100	30	100	83	273	83	273	83	273	30	100	30	100	30	100
Drainage 4 ²	73	239	73	239	73	239	73	239	73	239	73	239	0	0	0	0	0	0
CDFG Jurisdiction ³	2.11	5.20	1.77	4.37	1.69	4.16	2.08	5.13	1.77	4.37	1.69	4.16	1.69	4.16	1.35	3.33	1.27	3.12

*There are no impacts in the West Segment

¹Reported as hectares (first column) and acres (second column)

²Reported as linear meters (first column) and linear feet (second column)

³Includes freshwater marsh, riparian scrub, open water, and disturbed wetland habitats (as applicable), in hectares (first column) and acres (second column)

All build alignment alternatives would impact or partially impact a gnatcatcher territory shared by two gnatcatcher pairs. The North Alignment Alternative would only impact a small portion of the territory, while both the Central and South Alignment Alternatives would eliminate the majority of the territory.

Multi-Habitat Planning Area (MHPA)

There are two issues regarding the MHPA: the effect of impacts on the existing MHPA and the effectiveness of the wildlife corridor in Spring Canyon. The MHPA encompasses most of Spring Canyon, its tributaries, and most of the remaining vernal pool habitat west of Heritage Road (See [Figure 4-18A](#), [Figure 4-18B](#), [Figure 4-19A](#) and [Figure 4-19B](#)).

In the process of developing project alignment alternatives, attempts were made to minimize the impacts of crossing the MHPA by shifting the alignment alternatives to the north (MHPA lands cover greater areas to the south of the Study Corridor). The North Alignment Alternative is closest to Otay Mesa Road, and impacts 6.7 hectares (16.5 acres) of MHPA lands. The OCCS preserve would be impacted by this alignment alternative, however, and would require, due to the high sensitivity of the preserve, a higher mitigation ratio. The OCCS Preserve was created as part of the mitigation for the Otay Corporate Center development project. The South Alignment Alternative would impact 13.9 hectares (34.3 acres) of MHPA lands, while the Central Alignment Alternative would fall between the two 8.7 hectares (21.5 acres).

Wildlife movement effects are directly related to the amount of fill in Spring Canyon and the type of undercrossing proposed. Both the North and Central Alignment Alternatives would involve fill in Spring Canyon; however, the Central Alignment Alternative would have the largest amount of fill. The North Alignment Alternative crosses perpendicular to the canyon and would cause less disruption to wildlife movement than the Central Alignment Alternative, which crosses diagonally. The South Alignment Alternative would bridge the canyon, providing the least disruption to wildlife movement (compared with the proposed concrete arch culvert canyon crossings for both the North and Central Alignment Alternatives). The bridge option would be preferable, although all three of the alignment alternatives would preserve the existing functionality of the MHPA corridor for the intended small and medium-sized mammals. The wildlife undercrossing at Otay Mesa Road, which is two meters high by two meters wide (six feet high by six feet wide), is much smaller than the arch culvert proposed as part of this project, which is 3.5 meters wide by four meters high (12 feet wide by 13 feet high), but it is a critical feature regarding viability of the overall wildlife corridor. This fact makes the difference between the bridge and culvert designs less important.

Freeway Alignment Alternatives

The following discussion outlines impacts for the three alignment alternatives. [Figure 4-17](#), [Figure 4-18A](#), [Figure 4-18B](#), [Figure 4-20](#), [Figure 4-22](#), [Figure 4-24](#) and [Figure 4-25](#) illustrate impacts to biological resources for this alignment alternative.

North Alignment Alternative

Approximate impacts would include 0.05 hectare (0.13 acre) of vernal pool habitat (eleven vernal pools), 3.75 hectares (9.2 acres) of coastal sage scrub (including both the coastal sage scrub and disturbed coastal sage scrub categories shown in Table 4-5), 0.77 hectare (1.92 acres)

of riparian scrub, 0.04 hectare (0.11 acre) of freshwater marsh, 0.38 hectare (0.93 acre) of open water, 0.002 hectare (0.004 acre) of standing water (two pools), 32.4 hectares (80.1 acres) of annual grassland, 0.02 hectare (0.05 acre) of unlined flood channel/streambed, 0.05 hectare (0.13 acre) of disturbed wetlands, 0.2 hectare (0.4 acre) of eucalyptus plantation, 66.4 hectares (164.0 acres) of agriculture, 67.6 hectares (167.0 acres) of disturbed area, and 51.8 hectares (128.0 acres) of developed land.

The vernal pool impact and impacts to 0.065 hectare (0.16 acre) of wetland, and 0.38 hectare (0.96 acre) of non-vegetated Waters of the U.S. are under ACOE jurisdiction. Impacts to ACOE jurisdiction include five drainages, which are identified on [Figure 4-29](#) and [Figure 4-31](#). A total of 1.25 hectares (3.09 acres) of habitat (riparian scrub, open water, disturbed wetland, and freshwater marsh) is under CDFG jurisdiction.

The direct vernal pool impacts would occur to one pool just west of old Otay Mesa Road (pool 2) and 10 pools between Heritage Road and Spring Canyon (pools 35-39, 41, 47, 48, 51, and 52). One of the impacted vernal pools (pool 41) supports populations of San Diego button celery and spreading navarretia. Three impacted pools (pools 37-39) support San Diego fairy shrimp.

Grading impacts to vernal pool watershed would occur in five distinct watersheds. Within each of these five watersheds, all of the associated vernal pool surface area would be lost to Route 905 development. Two of the pools in these watersheds support sensitive vernal pool species, as discussed above. Watershed impacts will be mitigated in the context of the vernal pool mitigation.

Standing water (i.e., non-vernal pool) impacts would affect one pool that supports the San Diego fairy shrimp.

This alignment alternative would impact 2.06 hectares (5.1 acres) of the Otay Corporate Center South (OCCS) preserve, within the established MHPA preserve. Impacts include 0.04 hectare (0.11 acre) of vernal pool (eight pools), 0.08 hectare (0.2 acre) of coastal sage scrub, and both noted standing water pools. Mitigation ratios for habitat impacts in this preserve are a 1:1 factor higher than similar habitat impacts elsewhere, because the OCCS is an established preserve. This alignment alternative bisects the preserve.

Central Alignment Alternative

Approximate impacts would include 0.008 hectare (0.02 acre) of vernal pool (two pools), 6.39 hectares (15.7 acres) of coastal sage scrub (including both the coastal sage scrub and disturbed coastal sage scrub categories shown in Table 4-5), 0.78 hectare (1.83 acres) of riparian scrub, 0.004 hectare (0.01 acre) of freshwater marsh, 0.12 hectare (0.29 acre) of open water, 0.004 hectare (0.01 acre) of standing water (one pool), 32.4 hectares (80.1 acres) of annual grassland, 0.02 hectare (0.05 acre) of unlined flood channel/streambed, 0.05 hectare (0.13 acre) of disturbed wetlands, 0.2 hectare (0.4 acre) of eucalyptus plantation, 66.1 hectares (163.3 acres) of agriculture, 64.6 hectares (159.6 acres) of disturbed areas, and 51.8 hectares (128.0 acres) of developed land.

The vernal pool impact and impacts to 0.065 hectare (0.16 acre) of wetland, and 0.12 hectare (0.31 acre) of non-vegetated Waters of the U.S. are under ACOE jurisdiction. Impacts to ACOE jurisdiction include four drainages, which are identified on [Figure 4-29](#) and [Figure 4-31](#). A total

of 0.9 hectare (2.26 acres) of habitat (riparian scrub, open water, disturbed wetland, and freshwater marsh) is under CDFG jurisdiction.

The direct vernal pool impacts would occur on one pool southwest of the corner of Heritage and Otay Mesa roads (pool 54), and a single pool just west of Old Otay Mesa Road (pool 2). One impacted pool (pool 54) supports San Diego fairy shrimp. The remaining impacted pools do not support sensitive vernal pool species.

Grading impacts to vernal pool watershed would occur in three distinct watersheds. Within each of these three watersheds, there would be a total loss of vernal pool surface area, negating the value of remaining watershed portions. Only one pool associated with the impacted watersheds support sensitive species (low sensitivity). Fairy shrimp were not observed within standing water pools impacted by this alignment alternative.

The Central Alignment Alternative would impact the OCCS preserve along its southern boundary. While development under this alignment alternative would not impact any vernal pools within the preserve, it would affect approximately 1.2 hectares (3.0 acres) of coastal sage scrub and one pool of standing water.

South Alignment Alternative

Approximate impacts would include 0.03 hectare (0.08 acre) of vernal pool habitat (seven vernal pools), 8.32 hectares (20.6 acres) of coastal sage scrub (including both the coastal sage scrub and disturbed coastal sage scrub categories shown in Table 4-5), 0.68 hectare (1.69 acres) of riparian scrub, 0.07 hectare (0.18 acre) of open water, 0.02 hectare (0.05 acre) of standing water (six pools), 32.4 hectares (80.1 acres) of annual grassland, 0.02 hectare (0.05 acre) of unlined flood channel/streambed, 0.07 hectare (0.18 acre) of disturbed wetlands, 0.2 hectare (0.4 acre) of eucalyptus plantation, 66.3 hectares (163.7 acres) of agriculture, 63.4 hectares (156.6 acres) of disturbed area, and 51.5 hectares (127.3 acres) of developed land.

The vernal pool impact and impacts to 0.065 hectare (0.16 acre) of wetland, and 0.054 hectare (0.13 acre) of non-vegetated Waters of the U.S. are under ACOE jurisdiction. Impacts to ACOE jurisdiction include four drainages, which are identified on [Figure 4-29](#) and [Figure 4-31](#). A total of 0.83 hectare (2.05 acres) of habitat (open water, disturbed wetland, and riparian scrub) is under CDFG jurisdiction.

The direct vernal pool impacts would affect five pools on the ridge between the northernmost tributaries of Spring Canyon (pools 17-19, 21, and 22), one pool directly adjacent to Heritage Road (pool 54), and a single pool at the corner of Otay Mesa Road and Route 905 to the west (pool 2). Two impacted pools (pools 19 and 54) support San Diego fairy shrimp. The remaining impacted pools do not support sensitive vernal pool plant species or fairy shrimp.

Grading impacts to vernal pool watershed would occur in 11 distinct watersheds. Within eight of these watersheds, there would be a total loss of vernal pool surface area, negating the value of the remaining watershed (i.e., once the pools are lost). Two of the three remaining impacted watersheds support pools that have no sensitive species. The last impacted watershed supports several sensitive species in a vernal pool complex (10 pools sharing a common watershed). Within the pool complex, approximately 0.11 hectare (0.26 acre, or 14 percent) of the 0.75-hectare (1.86-acre) watershed would be impacted. Pools in this complex support populations of

Otay Mesa mint (approximately 630 plants), Otay tarplant (approximately 700 plants), and spreading navarretia (approximately 30 plants). One of the pools in the complex (pool 16) is known to support San Diego fairy shrimp. None of the pools of this complex support Riverside fairy shrimp. The impacts to the other two watersheds would involve loss of 0.02 hectare (0.05 acre, or 50 percent), and 0.14 hectare (0.34 acre, or 55 percent) of watershed, but no loss of pool surface area. Although the pools do not support sensitive species, this impact would require mitigation. San Diego fairy shrimp are recorded from one standing water pool impacted by this alignment alternative.

Tollway Alignment Alternatives

The Tollway Alignment Alternatives would have minor additional impacts to biological resources for all alignment alternatives when compared with the Freeway Alignment Alternatives. These impacts are due to the addition of tollbooths at the Heritage and Britannia off-ramps, as well as a tollway plaza and related facilities near Cactus Road. The additional impacts above and beyond those described for the Freeway Alignment Alternatives are summarized below, and are reflected in Tables 4-5 and 4-8. [Figure 4-17](#), [Figure 4-19A](#), [Figure 4-19B](#), [Figure 4-20](#), [Figure 4-23](#), [Figure 4-24](#), [Figure 4-26](#) and [Figure 4-27](#) illustrate impacts to biological resources for this alignment alternative. [Figure 4-30](#) and [Figure 4-31](#) illustrate USACOE Jurisdictional impacts for this alignment alternative.

North Alignment Alternative

Compared with the Freeway - North Alignment Alternative, this alignment alternative would entail an additional impact of 0.3 hectare (0.7 acre) of coastal sage scrub, 0.5 hectare (1.2 acres) of annual grassland, 1.4 hectares (3.4 acres) of agriculture, 4.1 hectares (10.1 acres) of disturbed area, and 0.6 hectare (1.4 acres) of developed. This alignment alternative would impact the same areas of other habitats for the Freeway – North Alignment Alternative.

One of the impacted drainages under ACOE jurisdiction (Drainage No. 4) would involve impact to approximately 83 meters (273 feet) rather than the 30 meters (100 feet) reported under the same Freeway Alignment Alternative. [Figure 4-30](#) illustrates this impact difference. Impacts to other linear features would be the same. The Waters of the U.S. impacts for this alignment alternative would be 0.36 hectare (0.90 acre) rather than the 0.38 hectare (0.95 acre) reported for the Freeway Alignment Alternative. Vernal pool impacts would not differ from the Freeway Alignment Alternative, nor would permitting requirements. The impacts to CDFG jurisdiction would be slightly less (0.02 hectare; 0.06 acre) than for the same Freeway Alignment Alternative.

Central Alignment Alternative

Compared with the Freeway - Central Alignment Alternative, this alignment alternative would entail an additional impact of 0.4 hectare (0.7 acre) of coastal sage scrub, 0.5 hectare (1.2 acres) of annual grassland, 1.6 hectares (4.0 acres) of agriculture, 2.9 hectares (7.2 acres) of disturbed area, and 0.5 hectare (1.1 acres) of developed. All other habitat impacts would be the same as described for the Freeway – Central Alignment Alternative.

One of the impacted drainages under ACOE jurisdiction (Drainage No. 4) would involve impact to approximately 82 meters (271 feet), rather than the 30 meters (100 feet) reported under the

same Freeway Alignment Alternative. Impacts to other linear features would be the same. The Waters of the U.S. and vernal pool impacts for this alignment do not differ from that reported for the Freeway Alignment Alternative. Permitting requirements are discussed above under the Freeway Alignment Alternative. The impact to CDFG jurisdiction would be the same as discussed under the Freeway Alignment Alternative.

South Alignment Alternative

Compared with the Freeway - South Alignment Alternative, this alignment alternative would entail an additional impact of 0.3 hectare (0.7 acre) of coastal sage scrub, 0.5 hectare (1.2 acres) of annual grassland, 1.6 hectares (3.9 acres) of agriculture, 2.8 hectares (7.0 acres) of disturbed area, and 0.5 hectare (1.2 acres) of developed. All other impacts would be the same as for the Freeway – South Alignment Alternative.

One of the impacted drainages under ACOE jurisdiction (Drainage No. 4) would involve impact to approximately 83 meters (273 feet) rather than the 30 meters (100 feet) described under the Freeway Alignment Alternative. Impacts to other linear features would be the same. The Waters of the U.S. impacts for this alignment alternative would be 0.06 hectare (0.14 acre) rather than 0.05 hectare (0.12 acre) reported for the same Freeway Alignment Alternative. Vernal pool impacts, permitting requirements, and CDFG jurisdictional impacts would not differ from the Freeway Alignment Alternative.

Expressway Staging Option [Presented for informational purposes only]

[Figure 4-17](#), [Figure 4-18A](#), [Figure 4-18B](#), [Figure 4-21](#), [Figure 4-23](#), [Figure 4-25](#) and [Figure 4-28](#) illustrate interim impacts to biological resources for this staging option. [Figure 4-29](#) and [Figure 4-32](#) illustrate interim USACOE Jurisdictional impacts for this staging option. The information presented on these figures and in the following text is for informational purposes only and is not intended for impact comparison.

For the west and middle segments, the Expressway Staging Option would have the same right-of-way (ROW) and impact footprint (for permitting purposes) as the Freeway Alignment Alternatives (i.e., sufficient ROW to accommodate up to eight lanes). Impacts are therefore similar to those of the Freeway Alignment Alternatives, discussed above. However, portions of the Expressway right-of-way east of Caliente Boulevard would potentially remain ungraded on an interim basis only (i.e., until it is expanded to six or eight lanes) and would retain some biological value during that time (i.e., until such future grading and expansion). However, since Route 905 is ultimately planned as an eight-lane facility under all alignment alternative scenarios these potential benefits are considered short-term. Specific resource values in the “potentially non-graded areas” are discussed below. These areas are not included in the calculation of impact numbers provided in Tables 4-5 and 4-9.

For the east segment, the Expressway Staging Option would have a smaller impact footprint (for permitting purposes) than the Freeway Alignment Alternatives, since the 905/125 interchange and local connector road to Enrico Fermi Drive (and associated ROW) are excluded. These exclusions are reflected in the lower impact numbers, on an interim basis only, in Tables 4-5 and 4-9. For the Expressway Staging Option, impacts to sensitive plant and animal species would not substantially differ from those described for the Freeway Alignment Alternatives.

No Project Alternative

Under this alternative there would be no change within the Study Corridor and no biological resources would be impacted.

4.10.2 Mitigation Measures for Direct Impacts

Quino Checkerspot Butterfly

Further protocol surveys will be done in Spring 2002. If an Alignment Alternative is selected which impacts the Quino, impacts to the species will be mitigated in accordance with the Section 7 consultation with the Fish and Wildlife Service, in coordination with the Federal Highway Administration. Mitigation may include land acquisition and/or selected restoration activities.

Vernal Pools

A vernal pool mitigation plan will be prepared for the selected alignment alternative, containing the measures summarized below. The plan will include a specific planting palette and measures to evaluate mitigation success. The mitigation-monitoring program is fully discussed in Chapter 7.

Vernal pool habitat mitigation will entail the preservation and enhancement of vernal pool habitat within the MHPA at a mitigation ratio of at least between 2:1 to 4:1 (depending on the sensitive plant and animal species present within the impacted pool). The ratio may be higher in accordance with Corps Section 404 permit requirements and the Section 7 consultation with the Fish and Wildlife Service. Vernal pool habitat impacts, within the OCCS preserve, will be mitigated at a 1:1 factor higher than for vernal pools outside the preserve. Any vernal pool habitat acquired for mitigation will encompass preserved pools and their respective watersheds (including mima mound topography, if present). Preservation of existing vernal pools and/or their creation and enhancement will be part of a compensatory mitigation plan for unavoidable impacts.

The Southern Alignment Alternative involves impacts to three vernal pool watersheds with retention of the supported pools. If this alignment alternative is selected, the impacts will be mitigated by re-creation of watershed equal to that being lost by contour grading disturbed areas adjacent to the impacted portions of watershed. Site specific requirements for recreating the vernal pool watershed (including mima mounds) will be identified as part of the noted vernal pool mitigation plan.

Mitigation for sensitive vernal pool plant species (San Diego button-celery and spreading navarretia) will require preservation of existing populations elsewhere within Otay Mesa vernal pool habitat. Although such mitigation is possible in theory, it may be difficult to find mitigation opportunities on Otay Mesa. In lieu of such mitigation, additional measures will be considered including topsoil salvage, transplantation, and enhancement/ restoration of vernal pool habitat elsewhere on Otay Mesa and/ or preservation of vernal pool habitat in areas outside Otay Mesa (depending on the species involved and direction from applicable regulatory agencies).

Impacts to variegated dudleya will be mitigated through salvaging the corms (bulbs) that will be impacted and transplanting them as part of the vernal pool mitigation program.

Impacts to San Diego fairy shrimp will be mitigated in the context of the compensatory vernal pool mitigation plan and the measures embodied in the MSCP. Mitigation for the San Diego fairy shrimp will also include conformance with the MHPA and Federal regulations, including consultation with the Fish and Wildlife Service, pursuant to Section 7 of the Endangered Species Act (ESA).

Wetlands

Wetland permitting will be required for this project and a wetland mitigation plan will be prepared. Compliance with the Clean Water Act (under the jurisdiction of the ACOE), shall be implemented for direct impacts to vernal pools, wetlands and non-wetland Waters of the U.S. At this time, it is anticipated that the project will require an Individual NEPA 404 Permit. However, lower acreage restrictions for Nationwide Permits became effective on June 7, 2000. Under the new Nationwide Permit, permanent impacts to non-tidal waters cannot exceed 0.2 hectares (0.5 acres). Based upon these new impact limits the proposed project may be eligible for a Nationwide Permit, specifically the Freeway Central and South Alignment Alternatives and the Tollway Central and South Alignment Alternatives. However, the ACOE retains discretionary authority to require an individual permit for vernal pool impacts in the project area. A Streambed Alteration Agreement with the CDFG will be required for impacts to riparian and wetland habitats. All alignment alternatives include areas of proposed vernal pool avoidance within the proposed ROW in the vicinity of Spring Canyon.

Coastal Sage Scrub

Direct impacts to coastal sage scrub will be mitigated at a 1:1 ratio in conjunction with any mitigation for the gnatcatcher, which would be required during Section 7 consultation. An exception to this ratio is the coastal sage scrub within the OCCS preserve that would be impacted by the Central Alignment Alternative (1.2 hectares [3.0 acres]) and North Alignment Alternative (0.08 hectare [0.2 acre]). These impacts would be mitigated at a 2:1 ratio. Mitigation will be the purchase and preservation of coastal sage scrub within the MHPA portions of Otay Mesa. The California gnatcatcher and its' associated coastal sage scrub mitigation will be determined during Section 7 consultation.

Appropriate areas of the project's graded slopes adjacent to natural habitat such as the MHPA and the canyon at the west end will be seeded with a coastal sage scrub mix. The best methods for seeding will be determined during design and could include duff topsoil salvage, hydroseeding, planting and possibly irrigation. These methods will be incorporated into the construction contract for the project as required actions. These areas are within the ROW and are subject to increased disturbance, and would therefore not receive mitigation credit even if planted as coastal sage scrub. Nevertheless, revegetation is considered vital for the viability of the wildlife corridor. A coastal sage scrub seed mix is being recommended for these slopes to increase potential biological habitat for associated sensitive species. Native plants / shrubs and possibly trees will be planted, with irrigation, to revegetate and help screen the wildlife corridor and canyon at the west-end. Erosion control and stabilization of soil within the corridor would also be a benefit of this revegetation. The District Biologist will be consulted to develop the best revegetation measures, including the development of a seed mix and planting plan.

Freshwater Marsh

The North and Central Alignment Alternatives propose avoidance of the freshwater marsh that is partially within the proposed ROW. The freshwater marsh has been restored at the north end of Spring Canyon as part of the Otay Mesa Road widening project. Successful avoidance of these wetland areas will require fencing, construction best management practices, and monitoring during construction. The proposed Route 905 ROW fence will be placed between Route 905 and the freshwater marsh to avoid impacts resulting from construction and maintenance activities.

Additional Mitigation Measures

To avoid nesting birds, no vegetation clearing shall occur between February 15 and September 1. Construction may occur during the breeding season if a pre-construction survey of the entire selected alignment alternative is conducted, including any nesting in Spring Canyon or in the eucalyptus plantation south of Route 905 and west of Old Otay Mesa Road. If active raptor nests are found, weekly biological monitoring of the nests shall be conducted during the breeding season when grading/ construction are on-going, to ensure that nesting birds are not adversely affected by project construction. The biological monitor shall determine the appropriate distance that construction is precluded from any active nest.

Impacts to open water and disturbed wetland will be mitigated at a 1:1 ratio, given these habitats' low quality in the Study Corridor. Impacts to annual grassland require mitigation under the City of San Diego's MSCP Subarea Plan; native grass seeds will be included as part of the seed mix used for revegetation of portions of the right-of-way adjacent to areas of existing native habitat and grassland. Such revegetation with natives is standard practice for Caltrans.

Environmentally Sensitive Areas (ESA's) will be designated around sensitive habitat and vegetation communities, and declared off-limits to construction activities. These ESA's will be delineated on the project construction plans and fenced in order to avoid impacts to these resources. Monitoring will be undertaken by a qualified biologist while construction takes place near these sites, to ensure that there are no impacts or encroachments.

Bat Roosting

Construction of Route 905 would likely result in loss of bat roosting sites in Spring Canyon through the removal of rock crevices and other suitable refugia. Roost sites for bats have important thermoregulation, reproductive, social, and predator avoidance functions. These areas can be used during the day or night. The biological resources report notes three species regarded as California State Species of Special Concern that may occur in the area: pallid bat (*Antrozous pallidus*), greater western mastiff bat (*Eumops perotis*), and Townsend's big-eared bat (*Plecotus townsendii*). Other bats such as myotis (*Myotis* sp.) and Mexican free-tailed (*Tadarida brasiliensis*) are likely to roost in the area.

To offset impacts to roosting habitat, pre-cast concrete panels can be placed on the outside of the proposed bridge/ culvert at Spring Canyon. Alternatively, design consideration should be given for including areas such as suitable-sized expansion joints in the structure design. Design should also consider accommodation of bridge-nesting birds such as cliff swallow (*Hirundo pyrrhonota*), rough-winged swallow (*Stelgidopteryx serripennis*), and white-throated swift (*Aeronautes saxatalis*).

Conclusion

With the incorporation of the above mitigation measures, the impacts of the Route 905 project upon biological resources, except for vernal pools, will be mitigated.

4.10.3 Indirect Impacts

This section primarily addresses the possible long-term effects related to Route 905. Regional effects and local urban edge effects that pertain to the immediate vicinity of the alignment alternatives are discussed.

Wildlife Corridor

The MHPA wildlife corridor that crosses the Study Corridor has high regional importance because it would provide the primary connection across western Otay Mesa between Spring and Dennerly canyons. While extensive data are not available regarding the existing use of this corridor, known biological observations indicate that only small to medium-sized animals would potentially use this corridor.

The North and Central Alignment Alternatives would incorporate an arch culvert, 64-meters (210-feet) long, 3.7-meters (12-feet) wide, and 3.9-meters (13-feet) high. The South Alignment Alternative would incorporate a bridge structure 220-meters (720-feet) long, 27.1 meters (89 feet) high, and 67 meters (220 feet) wide (30.5 meters [100 feet] wide for the Expressway). Ogden (1992) suggests a length-to-width ratio of less than 2 to 1 for wildlife corridor undercrossings that are designed to accommodate large animals. The same ratio is recommended for bridges, although bridges higher than 4.6 meters (15 feet) can have a higher length-to-width ratio. These ratios have been adopted as the basis for MSCP corridor design. Smaller animals would presumably tolerate larger length-to-width ratios. The culvert options as currently designed do not meet the MSCP standards of effective undercrossing design for large animals, because the length-to-width ratio is too large. The bridge, however, would meet the MSCP standards for large animals. Because the wildlife corridor is expected to be used by only small to medium-sized mammals, the proposed corridor design for all alignment alternatives is considered effective. The wildlife undercrossing at Otay Mesa Road is much smaller than the proposed arch culvert, but is a critical feature regarding viability of the overall wildlife corridor. This fact makes the difference between the bridge and culvert designs less important.

Mitigation Measures

The following action items will be considered for the indirect biological impacts:

- Any lighting used along the alignment alternatives will be directed downward toward the roadway and away from adjacent habitat areas and the entrances to the proposed wildlife undercrossing at Spring Canyon. Light shields will be used to further reduce glare.
- The Route 905 ROW will be fenced to preclude human access into adjacent habitat areas and keep animals off of the roadway. Highly sensitive areas (e.g., vernal pools) within the ROW that are planned for preservation (i.e., areas outside the proposed impact footprint) will be kept outside the fence line. Fencing will be located to minimize impacts.

- If construction occurs during the coastal California gnatcatcher breeding season (March 1 to August 15), a biologist will monitor nesting gnatcatchers adjacent to construction zones..
- Graded slopes adjacent to the wildlife corridor will be seeded with a coastal sage scrub mix, with planting and irrigation of native shrubs and/ or trees.

Conclusions

Identified impacts for all alignment alternatives, except for vernal pools and their associated species, will be mitigated, and all alignment alternatives would meet the objectives of the City's MSCP Subarea Plan. As can be seen on the vegetation and sensitive species maps ([Figure 4-18A](#), [Figure 4-18B](#), [Figure 4-19A](#), [Figure 4-19B](#), [Figure 4-22](#), [Figure 4-23](#), [Figure 4-25](#) and [Figure 4-26](#)) the alignment alternative more to the south would reduce impacts to vernal pools, the MHPA, sensitive plants, and wildlife. Moving the project to the north would increase vernal pool impacts and also involve many hazardous waste sites. In addition, many existing industrial developments would be displaced at great cost and economic disruption. These potential impacts were considered during the development of alignment alternatives. The Central Alignment Alternative was specifically designed to minimize vernal pool impacts. The South Alignment Alternative followed the adopted route. The North Alignment Alternative was designed to minimize impacts to coastal sage scrub in Spring Canyon (and the MHPA). Regardless of these design parameters, a preferred alignment alternative has not yet been identified.

The Biological Resources Technical Report concludes that the North Alignment Alternative is the least desirable for biological resources overall, based on its vernal pool, wetland, riparian habitat, and OCCS preserve impacts, although it would be the best alignment alternative for the MHPA. The alignment alternative with the least biological resource impacts, comparing the South and Central, is less clear because they impact resources in different ways. Based on the analyses conducted for this document, the two most important biological resources within the Study Corridor are considered to be vernal pool habitat and the MHPA. The Central Alignment Alternative would have the least impacts to vernal pool resources and fewer impacts than the South Alignment Alternative on the MHPA. The South Alignment Alternative passes close to the center of Spring Canyon in the MHPA. A preferred alignment alternative has not yet been identified.

4.11 CULTURAL RESOURCES

Cultural resource studies were done to comply with Section 106 of the National Historic Preservation Act and with 36 CFR §800, as well as with CEQA. The Historic Properties Survey Report (HPSR) presents all the studies which inventory and evaluate the cultural resources located within the project's Area of Potential Effect (APE), and assesses project effects to one proposed eligible historic property. Resources located within the project APE include: 16 archaeological sites/loci, two mapped historic locations, and 21 historic architectural features.

Based on evaluations conducted on the above resources, only one prehistoric archaeological site, CA-SDI-11,424, has the qualities necessary for it to be considered eligible for listing on the National Register of Historic Places and for placement on the California Register of Historical

Resources. Once field and laboratory studies confirmed the importance of this site, project plans were redesigned to avoid impacting any of the subsurface components of this resource, from which this site's significance is derived.

Like many of the archaeological sites on Otay Mesa, CA-SDI-11,424 also contains a large, diffuse surface scatter of materials that may or may not be cultural in origin. The preferred lithic resource in this region for stone tool manufacturing is a metavolcanic that occurs as float across the entire Otay Mesa. It has eroded out of the San Ysidro Mountains to the east and been carried across the mesa all the way to the ocean, a distance of some 19 kilometers (12 miles). Over the past 150 years the mesa has been extensively dry farmed, with the resulting activities further smearing, breaking, and confusing the surface archaeological record into one large incomprehensible smear. Through literally dozens of archaeological studies conducted over the past 20 years, all these efforts have shown that the surface smears in every single case lack sufficient data for them to be considered important resources under either state or federal criteria. The surface smears lack artifact variability, lack ecofacts, lack diagnostic artifacts, lack datable materials suitable for either chronometric or relative dating techniques, lack further research potential, lack Native American heritage values, and lack any features that derive their importance for being preserved in place.

When cultural studies for Route 905 commenced in 1996, the State Office of Historic Preservation (OHP) determined that it would be inefficient to investigate the "smear" portions of sites occurring within the Route 905 APE. It was decided that public funds could be best spent developing a management plan that would address the problems of Otay Mesa archaeology, and recommend procedures for the treatment of resources found on the mesa. In response to this goal, a management plan has been developed as part of the Route 905 HPSR.

This plan provides archaeological treatments for the various resources that are found on Otay Mesa. Caltrans will attempt to make this plan a formal part of future state and federal undertakings on the mesa. This may be accomplished through dissemination of the document to all local jurisdictions, to the South Coastal Information Center (SCIC) at San Diego State University, and through a formal presentation that would be made at one of the monthly meetings held by the SCIC for cultural resource professionals working in the county. There is however no formal mechanism through the Route 905 Section 106 process to require the adoption of this management plan by the County of San Diego or the City of San Diego, the two primary jurisdictions on Otay Mesa.

Included in the cultural resource studies is a comparison of lithic assemblages from a number of Otay Mesa sites of differing functional types and chronological periods. An analysis was undertaken in an attempt to establish whether lithic technology could be used to make meaningful statements about the nature of Otay Mesa archaeology, both functionally and chronologically. This comparison is an important contribution to the archaeology of Otay Mesa specifically, and to San Diego County in general. It focuses on the pursuit of meaningful results, rather than in the rote evaluation of sites whose lack of research potential is known at the survey level.

The State Historic Preservation Officer (SHPO) has concurred on the adequacy of the studies involving the inventory of cultural resources located within the project's APE, and the evaluation of those resources. Section 106 compliance was obtained on January 11, 2000 (a copy of the SHPO letter appears in Appendix E). SHPO also concurred that:

- Efforts to identify historic properties within the Route 905 APE have been adequate;
- Archaeological site CA-SDI-11,424 is eligible for listing on the National Register of Historic Places and for placement on the California Register of Historical Resources;
- The following cultural resources are not eligible for either the National or California registers: Archaeological sites CA-SDI-6941/Loci G & Y, CA-SDI-7208, CA-SDI-7604, CA-SDI-10,186/Locus B, CA-SDI-10,187, CA-SDI-10,245/CA-SDI-10,734, CA-SDI-11423, CA-SDI-12337, CA-SDI-12881, CA-SDI-12882, CA-SDI-14086/H, and CA-SDI-14,087; mapped historic locations P-37-015987 and P-37-015988; and architectural features at the Otay International Center/Otay Commercial Center, San Diego Gas & Electric Substation, some partially demolished concrete block buildings, some other concrete block buildings, the Brown Field Business Park, the buildings located at 1950/ 1940/ 1916/ 1812/ 1724/ 1708/ 1704/ 1690/ 1670 Cactus Road, the Mesa Business Park, buildings at 6450/ 1625 Heritage Road, 6275 Otay Mesa Road, and a small series of sheds;
- The proposed construction of Route 905 will have “No Adverse Effect” on any historic properties listed on, or determined eligible for listing on, the National or California registers. This is because of project redesign to avoid impacting any of the qualities that make CA-SDI-11,424 eligible for inclusion in these registers; and
- FHWA, Caltrans, and the City of San Diego have satisfied their requirements under 36 CFR §800 in accordance with Section 106 of the National Historic Preservation Act, as amended.

In accordance with the revised 36 CFR §800 regulations published in the Federal Register on May 18, 1999, the Advisory Council on Historic Preservation is no longer required to concur on a No Adverse Effect finding. No further cultural resource studies should be necessary unless the project APE changes to include previously unevaluated areas.

Mitigation/ Monitoring Measures

Environmentally Sensitive Areas (ESA's) will be designated around the adjacent recorded sites, and declared off-limits to construction activities. These ESA's will be delineated on the project construction plans in order to avoid impacts to these resources.

The construction contractor will have the responsibility to ensure mitigation monitoring is undertaken by a qualified archaeologist while construction takes place near archaeological site CA-SDI-11,424, to ensure that there is no impact to this site. Similarly, monitoring will also be undertaken on the former grounds of St. Johns Church, where buried historical features may still be present. If buried cultural materials are unearthed during construction, Caltrans policy states that work be halted in the vicinity of the find until a qualified professional can assess its nature.

4.12 HAZARDOUS MATERIALS

Hazardous materials and contaminated soil may be encountered within the project area. An Initial Site Assessment, including a record search, identified 57 known sites in the Study Corridor with the potential for environmental problems during project construction. [Figure 4-33](#), [Figure 4-34](#), [Figure 4-35](#) and [Figure 4-36](#) show topography and sites, within the alignment alternatives.

Sites within the Corridor were categorized in order of their relative levels of potential for hazardous materials. Five category rankings were developed for the Corridor and are listed in Table 4-10. Category 1 “Generators/Users” has the lowest potential, with increasing potential through Category 5 “Hazardous Waste Disposal Site”. The number of sites within the footprint for each alternative is shown for each category. In order to rank the relative impacts of hazardous waste, leaking underground storage tanks, and undocumented discharge of waste to land, a search and review of federal, state, and regional environmental regulatory agency databases was conducted for the Study Corridor. This included a review of selected County of San Diego Department of Environmental Health (DEH) Site Assessment and Mitigation Division files. This analysis was followed up by reconnaissance of the Corridor in an attempt to visually assess these sites and identify hazards not documented by regulatory agencies. Further analysis of the area was conducted through a review of historical aerial photographs to identify potentially impacted sites, which are currently obscured and/or undocumented. For sites within the project footprint, additional assessment may be performed by District hazardous materials specialists prior to construction, which could include a comprehensive file review, site inspection and subsurface sampling.

One site of special concern is an unpermitted hazardous waste landfill, which occupies and fills the head of Spring Canyon adjacent to and west of Cactus Road (See [Figure 4-33](#) and [Figure 4-34](#)). This landfill, also known as the “Tripp Landfill”, is a Category 5 site, and is the only documented hazardous waste site within the project footprint. According to an ENVIRON Corporation report prepared for the County of San Diego (May 10, 1995), the wastes contained within the landfill include auto-shredder waste, burn ash and burn-ash contaminated soil. As part of the feasibility study for the evaluation of mitigation measures, this report identified five remedial alternatives for the site: (1) no action, (2) capping, (3) disposal of waste/soil as non hazardous or special waste, (4) disposal of the waste/soil as hazardous waste, and (5) solidification. A remedial action workplan (RAW) was developed for the properties encompassing the landfill with rationale and methodologies to cap the site with asphalt. The site is under the local oversight of the County Department of Environmental Health (DEH). The DEH has stated that a final decision regarding the RAW is pending public comment prior to CEQA certification. Currently, capping with asphalt is the County’s proposed option. This remedial action is the preferred option and is expected to be compatible with the proposed Route 905 project. It is anticipated that the RAW (once approved) would effectively mitigate any adverse hazardous materials impacts.

Table 4-10
INVENTORY OF HAZARDOUS WASTE SITES BY CATEGORY¹

Alternative	Generators/Users (Category 1)	Closed Sites (Category 2)	Surficial Debris (Category 3)	Unauthorized Releases (Category 4)	Hazardous Waste Disposal Site (Category 5)
Freeway	17 ^(S) 18 ^(N,C)	0	13 ^(S) 14 ^(N,C)	0	1 ^(N,C,S)
Tollway	17 ^(S) 18 ^(N,C)	0	14 ^(S) 15 ^(N,C)	0	1 ^(N,C,S)

Notes:

¹According to a relative ranking of potential impact, from low (1) to high (5).

^SSouth Alignment.

^NNorth Alignment.

^CCentral Alignment.

The preliminary geotechnical investigation identified “undocumented” or unengineered fill deposits in portions of the Tripp Landfill. Based on the presence of such materials (which typically require re-compaction to accommodate loading), the capping remediation alternative may require some removal and off-site disposal or treatment of hazardous materials. Activities that would disturb or remove soil (e.g., scarification, excavation, and recompaction of unsuitable structural fill and/or road base, excavation for subsurface utilities, and installation of detention/retention basins or other drainage control structures), will take into account existing hazardous wastes present and the selected DEH remedial alternative.

A geotechnical investigation of the waste materials present has been conducted by the Caltrans Geotechnical Department to determine suitability for recompaction. The recommended option from this investigation combines foundation treatment (removal and recompaction) of the near-surface waste fill soils in conjunction with placing a surcharge fill to accelerate consolidation settlement. This option would be necessary prior to building the structural section of the proposed project through this area. Design will determine whether complete removal is necessary or if the Geotechnical Department’s recommendation for removal, recompaction and surcharge fill is adequate. This depends on scheduling needs and construction restraints for the project.

The other hazardous materials site of potential concern is Cactus Recycling, located adjacent to the Tripp Landfill on Cactus Road. Caltrans has performed a soils investigation on this property. Soil test results were analyzed according to the statistical methods recommended by the Environmental Protection Agency. Soils from this property that remain on site have passed recommended confidence interval and no further testing is will be required if the soils remain in place. The proposed project will accommodate the need to keep these soils in place by raising the highway profile appropriately. The presence of any additional contamination would require remediation by either excavation or leaving in place.

Undocumented refuse has been discharged into the canyons and mesa. While these deposits appear to be illegally-disposed refuse (household, commercial/ industrial or construction/ demolition-related), some of these refuse piles are relatively large, such that the contents of their base are not visible and could obscure hazardous waste. Right-of-Way demolition will remove these files prior to construction and material will be disposed of or recycled. Visual assessment of the underlying soil will be performed at these sites, and, if necessary, soil testing will confirm whether or not hazardous waste has impacted the soil. These refuse piles are present in scattered locations within the impact footprints of each of the alignment alternatives.

Discussion of Alternatives

Although the Freeway and Tollway Alignment Alternatives differ slightly in the number of sites potentially impacted, as shown in Table 4-9, these differences are negligible. All alignment alternatives would impact the “Tripp Landfill” site (a Category 5 site) and numerous Category 1 and 3 sites, and would therefore be subject to potentially adverse hazardous materials impacts. All of the Category 1 sites were visited and County files were reviewed if warranted. Further impacts and costs associated with hazardous materials at the Category 1 sites are not anticipated. Due to the occurrence of these sites (particularly the Tripp Landfill site) within all alignment alternatives, there is no substantial difference in the nature or level of potential hazardous

materials impacts among the alignment alternatives. It is anticipated that the potential hazardous materials impacts will be limited to the Tripp Landfill and Cactus Recycling. The mitigation measures discussed below would minimize all identified adverse hazardous material impacts associated with the proposed project.

Mitigation Measures

Caltrans standard specifications and requirements will be followed regarding hazardous materials. Grading and construction activities will be monitored to identify such materials. If hazardous materials are discovered during construction, the resident engineer will halt work in the area of concern, flag the area, and notify the Caltrans District Hazardous Waste Coordinator. When appropriate, the Coordinator will initiate the District's hazardous materials program to notify a HAZMAT team in the region, arrange for waste sampling and identification, and follow established procedures for cleanup. Best Management Practices will be followed. This will include measures to avoid or minimize the potential influx of contaminants into local runoff and surface waters. Specifically, such measures will include the use of vegetation-lined retention and detention basins to hold and filter runoff from the project site and minimize runoff discharge into sensitive habitats (including vernal pools).

During operation of the project, Caltrans will follow standard operations and maintenance procedures to maintain the road. As part of these standard procedures, Caltrans has developed a standard Hazardous Waste and Spill Response Plan, which will be implemented to reduce risks of potential hazardous waste spills.

Caltrans will work closely with government regulators having oversight of the Tripp Landfill during design and construction of the proposed project to make sure that design and construction occur in a manner that is compatible with the remedial plan for the landfill. The project design team and contractors will be prepared to address mitigation contingencies for this site, including implementation of an operations and maintenance program following completion of the project. Any disturbance to the Tripp Landfill would require a Site Health and Safety Plan (SHSP) and a Community Health and Safety Plan (CHSP), in accordance with the current DEH *Site Assessment and Mitigation Manual*. A SHSP would address the need for site workers to be informed and trained under the OSHA Hazardous Waste Operations and Emergency Response standard, 19 CFR 1910. A CHSP would address potential exposure to adjacent properties and the general public, and prescribe control measures to protect the public from exposure to toxic substances during project activities.

The predicted level of effort to implement mitigation measures for any of the alignment alternatives would be equal. Provided the mitigation measures and standard requirements discussed above are implemented, it is anticipated that no substantial hazardous materials impacts will be associated with project implementation. Specifically, these measures are expected to avoid or minimize potential impacts to human health (including construction workers and the general public), water quality and sensitive biological habitats (including vernal pools).

4.13 FLOODPLAIN ASSESSMENT

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable

alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A. The 100-year floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year”. An encroachment is defined as “an action within the limits of the 100-year floodplain.” There are no FEMA-mapped regulatory floodways or 100-year floodplains at any locations affected by any alignment alternative for the project currently under study. However, a 100-year base floodplain was developed using the Army Corps of Engineers water surface program (HEC-RAS) and previous floodplain studies for the area.

The 1989 National Flood Insurance Program (NFIP) maps identifies this area as an “Area of Minimal Flood Hazard”. The proposed project would result in a longitudinal encroachment east of La Media Road. For all alignment alternatives being considered the encroachment would cross the identified Otay Mesa floodplain area between Otay Mesa Road and Airway Road. Since substantial encroachment impacts for all alignment alternatives would be avoided through routine design measures the encroachment is not considered significant. A floodplain evaluation and hydraulic location study were prepared for the floodplain encroachment; these studies are on file in the Caltrans District office. Floodplain encroachment, and the proposed drainage plan for the encroachment, are shown on [Figure 4-37](#), [Figure 4-38](#) and [Figure 4-39](#).

4.13.1 Risks Associated with Implementation of the Action

No risks are involved within the floodplain area for any of the alignment alternatives. The permanent intrusion into the base floodplain with any alignment alternative would not present a major obstruction to the flood flows. The proposed project would include the placement of abutment fill within the existing base floodplain (approximately 710,000 cubic meters (930,000 cubic yards) for the Freeway and Tollway Alternatives), however, the project would incorporate standard drainage facilities, which would eliminate the potential for any flooding. As a result, in the event of a 100-year flood, no adverse flooding impacts would result from the implementation of the proposed project. The proposed alignment alternatives would not present an increase in the potential for upstream or downstream property damage from flooding. The project would not increase the risk of loss of life, nor would the highway operations be affected by flooding, for any of the proposed alignment alternatives. No feature of the project would substantially change the water surface elevation upstream from the encroachment. For all of the alignment alternatives under consideration adequate drainage design measures would be installed.

4.13.2 Impacts on Natural and Beneficial Floodplain Values

Direct physical effects of the project on the floodplain would be limited to temporary construction impacts and permanent (but not significant) effects of placement of the selected alignment alternative within the floodway. The project would include longitudinal placement of fill in the floodplain fringe, but this encroachment is not considered significant due to the proposed mitigation measures. There are no sensitive biological habitats or resources in the floodplain area, which could be affected by construction. There are also no recreation resources/designated open space in the floodplain area.

4.13.3 Support of Probable Incompatible Floodplain Development

The project would not support incompatible development. The project (all build alignment alternatives) would increase mesa accessibility, and would support planned development. Some

development, within the floodplain is likely to occur. The City and County of San Diego regulate floodplain development and this regulation prevents incompatible development. The proposed project by itself would not provide new access or direct access to the affected floodplain with any of the alignment alternatives under study. Access to the highway would be controlled, and the highway would be placed within the floodplain on fill elevated above the floodplain elevation. The only points of authorized egress from the highway would be at interchanges with existing or future public surface streets.

4.13.4 Measures to Minimize Floodplain Impacts Associated with the Action

Routine construction procedures required by Caltrans for all projects would minimize impacts during construction. These procedures include limiting the affected area using barriers or fences to protect sensitive areas, employing best management practices to control erosion and reduce sedimentation downstream, as well as restricting access to designated Environmentally Sensitive Areas (ESA's) where appropriate. Installation of cross-culverts would allow for the continued natural flow of floodwaters and would minimize physical disturbance of the floodplain.

The floodplain administrator agency for this area is the City of San Diego. The city is currently finalizing the Otay Mesa Drainage Master Plan (OMDMP). Caltrans is a cooperating partner and will participate in a fair share contribution to the floodplain protection within this basin, under certain conditions listed below. No additional measures to minimize impacts are required. The proposed project would improve existing flooding conditions by reducing the risk for property loss and hazard to life. The design of the project would incorporate the OMDMP findings under the following conditions:

- The OMDMP would be in place prior to the construction of Route 905.
- The costs to Caltrans are less than or equal to the costs for the drainage facilities Caltrans would install if the master plan were not implemented.
- The procedures and facilities that the City plans to incorporate into the OMDMP will meet federal restrictions on funding.
- The OMDMP will comply with all the multi-jurisdictional regulation requirements.

If the OMDMP is not implemented, the project's drainage system would be designed to maintain existing drainage conditions, including several drainage systems which would intercept tributaries north of the project and convey runoff into a proposed detention/retention facility. The systems would spread excess runoff south of the project.

4.13.5 Measures to Restore and Preserve the Natural and Beneficial Floodplain Values Impacted by the Action

As described above, construction impacts will be minimized through adherence to requirements for standard construction practices, maintenance of the general direction of flow of the floodplain, and the designation of ESA's subject to avoidance and monitoring. All temporarily disturbed areas will be revegetated. No other mitigation measures are required for impacts to natural and beneficial floodplain values, since there are no sensitive resources in the area of the

encroachment (it is described as disturbed in the Biology Report for the project, and farmlands are considered interim).

4.13.6 Practicability of Alternatives to Any Significant Floodplain Encroachment

The purpose of the proposed project is to provide an important link as part of the San Diego Regional Outer Loop, consisting of Routes 56, 125, and 905. This link is needed to alleviate congestion along Otay Mesa Road, to serve existing and future approved and planned area development, and to provide an essential traveled way between the United States and Mexico. To fulfill the purpose and need, the requirement is for an east-west highway in the corridor stretching east from Interstate 805 to the Otay Mesa POE. The floodplain crosses the mesa, therefore any viable build alignment alternative meeting the purpose and need for the project would encroach into the floodplain.

4.14 ENERGY

There would be no substantial wasteful energy uses caused by any of the alignment alternatives, including energy use required for construction. Energy requirements for all construction alignment alternatives would be similar. Post-construction operational energy uses of the facility would be less with the build alignment alternatives, when compared to the no-build alternative, due to the improved traffic flow/ reduction in congestion. The savings in operational energy requirements would more than offset the energy used for construction, and would result in a net savings in energy use in the long term.

4.15 NOISE

The noise analysis was performed in accordance with Caltrans Traffic Noise Analysis Protocol (Caltrans 1998) based upon FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772). In accordance with these guidelines, existing noise levels are measured using sound meters at sensitive receptors such as homes. These existing noise levels are compared to future predicted noise levels. The noise study complies with NEPA requirements for evaluation of noise impacts and abatement for the proposed Route 905 project. It is the policy of highway agencies to consider abatement for noise impacts if fiscally prudent and physically and technically feasible.

Table 4-11
ACTIVITY CATEGORIES AND NOISE ABATEMENT CRITERIA (NAC)

Activity Category	Hourly A-Weighted Noise Level, DB(A) $L_{eq}(h)$	Description of Activities
A	57 Exterior	Lands where serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Traffic noise impacts occur when there is a substantial noise increase and/or when predicted noise levels approach, within 1 dBA, or exceed the Noise Abatement Criteria (NAC). A noise increase is substantial when the predicted noise levels exceed the existing noise levels by 12 dBA, $L_{eq}(h)$. The NAC lists developed land use types as Categories A, B, C, D or E. Table 4-11 provides the category types, associated noise levels and a description of activities within each category.

Sensitive Receptors

Noise Monitoring was conducted at nine receptor locations within the Study Corridor. [Figure 3-12](#) shows these locations. These monitoring locations adjacent to the proposed project's corridor were identified and selected for detailed study. The existing ambient noise environment consists primarily of noise from local automobile traffic and air traffic from Brown Field. Extended (24-hour) on-site noise measurements of ambient noise levels, according to the Technical Noise Supplement (TeNS), were conducted at the nine monitoring sites. Noise levels for the nine receptors were predicted for the year 2020 using Caltrans SOUND 32 model. Several Category B residential receptors were identified. These receptors are shown on [Figure 4-40](#), [Figure 4-41](#), [Figure 4-42](#), [Figure 4-43](#) and [Figure 4-44](#). Activity Category B receptors represent the most sensitive land uses along the proposed project alignments. There are no Category A uses within the project Study Corridor. A survey of existing Category B receptors identified the following two sites within the Study Corridor:

- Site 1 – One single-family dwelling immediately south of Otay Mesa Road between Old Otay Mesa and Heritage Roads.

Site 2 – Several single-family residences along Cactus Road in a mixed industrial, agricultural and residential use.

Site 1 is discussed under the No Project Alternative. The Site 2 residences along Cactus Road include a single family, one-story home (1708 Cactus Road) north of proposed Route 905 with chapel services offered in a garage, a one-story home (1812 Cactus Road) south of proposed Route 905 and a two-story home (1916 Cactus Road) further to the south. The location of these residences relative to the proposed project impact footprint is shown on [Figure 4-40](#) and [Figure 4-41](#). The level and nature of these impacts would be similar for all of the alignment alternatives, with either two or three existing residences affected as summarized below and in Tables 4-13 and 4-14.

- Freeway Alignment Alternatives - The existing residences at 1708 and 1812 Cactus Road would experience substantial noise impacts for all alignment alternatives. The noise level increases for these sites would range from 7-13dBA. The residence at 1916 Cactus Road would have noise levels exceeding the NAC for all alignment alternatives.
- Tollway Alignment Alternatives - The existing residence at 1812 Cactus Road would be substantially affected for all alignment alternatives. The noise increases would range from 7-14dBA. The residence at 1916 Cactus Road would have noise levels exceeding the NAC for all alignment alternatives. The third residence (the church/residence site located north of proposed Route 905 at 1708 Cactus Road) is located within the proposed Tollway Alignment Alternative right-of-way (ROW), and therefore would be acquired and represent a full take as part of these alignment alternatives.

Planned/Future Developments

While there are few existing noise-sensitive uses in the Study Corridor, development plans for the western portion of the project area call for numerous homes, schools, parks and other related uses. Development plans within the Study Corridor include 29 private development projects listed in Appendix C. These related development projects identify residential, commercial, and industrial uses. Four of the private development projects (California Terraces, Santee Investments/ Otay Mesa, Remington Hills, and Rivera Del Sol) identified in Appendix C and adjacent to the proposed project have completed the necessary environmental clearances. The City of San Diego has conditioned the approval of these projects based upon the provision of adequate noise abatement measures in anticipation of Route 905. Each of the associated environmental documents for these four developments identifies the need for and includes appropriate noise abatement measures.

Caltrans is tasked with the responsibility to consider noise abatement measures, based upon the reasonable and feasible findings, for all potential impact areas that are planned and permitted prior to NEPA action on the Caltrans project. Given the conditioned approvals described above for the four named projects, noise abatement measures will not be considered as part of the Route 905 project. If additional planned developments, including but not limited to those described in Appendix C, receive the necessary environmental clearance prior to the NEPA action on the Route 905 project, Caltrans will conduct the appropriate noise analysis to determine if noise abatement measures are necessary. At this stage of the proposed project there are no noise abatement measures planned for future developments, however, prior to final design an additional noise study will be conducted if deemed necessary.

Noise Abatement

The determination on whether a detailed analysis is necessary and if consideration of noise abatement is required is based on criteria established by FHWA and state noise analysis guidance. Based upon those criteria it was determined that noise abatement should be considered. The inclusion of noise barriers in highway projects requires that such barriers be “reasonable and feasible”, per FHWA and Caltrans policies. A Reasonable/Feasible Study was prepared to examine abatement options for the potential noise impacts. Noise abatement is termed feasible if the proposed barrier provides, according to the Caltrans Noise Protocol, a minimum 5 dBA noise reduction. A reasonable determination is more subjective and individual circumstances for each effected property is considered in the decision making process. The preliminary reasonable determination on providing noise abatement is based on multiple factors including the cost of abatement, absolute noise levels, change in noise levels, noise abatement benefits, and the date of development along the highway.

Noise barriers, if found to be reasonable and feasible, are generally placed within the highway right-of-way (ROW). However, for the proposed project the three impacted residences along Cactus Road are located perpendicular to the proposed project and as a result a noise barrier within the ROW would have to be quite long to provide adequate noise abatement.

Consequently the construction of extensive noise barriers within the highway ROW would not meet the reasonable determination. A second option considered for special cases provides for noise barriers built on private property. This type of noise abatement would include a “half-box” wall, which partially wraps around the impacted residences and thus provides a noise shadow. Provided the property owners agree to donate the construction easement necessary for placement of the proposed barriers, this type of noise abatement would be reasonable and feasible for all of the impacted residences. Table 4-12 provides the reasonable determination on allowable and estimated cost of the proposed noise abatement. The following half-box noise barriers would provide the necessary abatement measures:

Freeway – North Alignment Alternative

- 1708 Cactus Road – 3.0 meters (10 feet), length=38.71m
- 1812 Cactus Road – 3.0 meters (10 feet), length=79.20 m
- 1916 Cactus Road – 3.0 meters (8 feet), length=39.62 m

Freeway – Central & South Alignment Alternatives

- 1708 Cactus Road – 3.0 meters (10 feet), length=38.71 m
- 1812 Cactus Road – 3.0 meters (10 feet), length=79.20 m
- 1916 Cactus Road – 2.4 meters (8 feet), length=39.62 m

Tollway – All Alignment Alternatives

- 1708 Cactus Road – full right-of-way take, no barrier necessary
- 1812 Cactus Road – 3.0 meters (10 feet), length=79.20 m
- 1916 Cactus Road – 2.4 meters (8 feet), length=39.62 m

The proposed walls would be the first order of work for construction in the area of the affected homes. This type of noise abatement would be reasonable and feasible for all of the impacted residences. Tables 4-12 and 4-13 compares the allowable abatement cost with estimated actual cost of the proposed noise abatement for the Freeway and Tollway Alignment Alternatives

respectively. The estimated cost of barriers is based on the cost of the wall, footings, traffic control, drainage, modifying or adding planting, miscellaneous items and a 10% contingency.

Table 4-12
REASONABLENESS TABLE (Freeway Alignment Alternatives)

Location	Barrier	Allowable Abatement Cost		Estimated Cost of Barrier*		Exceeds Allowable Abatement Costs	
		North	Central/South	North	Central/South	Yes	No
1708 Cactus Road	1	\$45,000	\$43,000	\$23,000	\$23,000		X
1812 Cactus Road	2	\$37,000	\$37,000	\$55,000	\$55,000	X	
1916 Cactus Road	3	\$31,000	\$35,000	\$24,000	\$14,000		X

* If homeowners agree to donate the construction easement necessary for placement of the noise barrier on private property.

Table 4-13
REASONABLENESS TABLE (Tollway Alignment Alternatives)

Location	Barrier	Allowable Abatement Cost		Estimated Cost* of Barrier		Exceeds Allowable Abatement Costs	
		North	Central/South	North	Central/South	Yes	No
1708 Cactus Road ¹							
1812 Cactus Road	2	\$37,000	\$37,000	\$55,000	\$55,000	X	
1916 Cactus Road	3	\$29,000	\$35,000	\$24,000	\$19,000		X

* If homeowners agree to donate the construction easement necessary for placement of the noise barrier on private property.

¹ 1708 Cactus Road would be a full take acquisition for the Tollway Alignment Alternatives

No property owner consultation has been conducted to date. It is anticipated that contact with the existing property owners would take place by the end of the year-2001. This consultation would explain the process and discuss the preliminary noise abatement decision during the draft environmental document phase. According to the noise protocol (TNAP Sections 4.2 and 4.3) a final decision on noise barriers is not needed until input from the public and local agencies has been received.

If pertinent parameters change substantially during the final project design, the preliminary noise abatement/ mitigation design may be changed or eliminated from the final project design. A final decision of the construction of the noise abatement/ mitigation will be made upon completion of the project design. Proposed noise barrier analysis is provided in Tables 4-14 and 4-15.

No Project

Under the No Project Alternative, existing noise levels for the Cactus Road residences would not be affected. However, as a result of the projected increases in traffic on Otay Mesa Road, substantial noise level increases would occur at the Site 1 residence between Old Otay Mesa and Heritage roads. Otay Mesa Road would continue to serve as the connection between the existing and interim Route 905 segments and would experience substantial future increases in traffic volumes and the associated noise. None of the proposed alignment alternatives would have noise impacts on the noted Old Otay Mesa Road residence.

TABLE 4-14
CACTUS ROAD RESIDENCES TRAFFIC NOISE IMPACT
ABATEMENT ANALYSIS dB(A) L_{eq}
(Noise Barriers within Right of Way)

<u>FREEWAY ALIGNMENT ALTERNATIVES</u>					
North Alignment:		Barrier Height -----			
<u>Receiver</u>	No <u>Barrier</u>	1.8m <u>(6')</u>	2.4m <u>(8')</u>	3.0m <u>(10')</u>	3.7m <u>(12')</u>
“Church”	80	79	76	75 ¹	73
S. House	73	72	70	69	68 ¹
2-Story	68	68	67	67	66
Central & South Alignments:					
“Church”	79	79	76	73 ¹	71
S. House	74	72	71	70	69 ¹
2-Story	70	69	69	68	68
<u>TOLLWAY ALIGNMENT ALTERNATIVES</u>					
North Alignment:		Barrier Height -----			
<u>Receiver</u>	No <u>Barrier</u>	1.8m <u>(6')</u>	2.4m <u>(8')</u>	3.0m <u>(10')</u>	3.7m <u>(12')</u>
S. House	73	72	70	69	68 ¹
2-Story	68	68	67 ²	66 ²	66 ²
Central & South Alignments:					
S. House	74	72	70	69 ¹	68
2-Story	70	69	68	68	67 ²

¹ = meets 5 dB(A) benefit criterion

² = achieves Category B (67 dB(A) L_{eq}) exposure, but not a 5 dB(A) benefit

³ =no impact, no abatement required

TABLE 4-15
CACTUS ROAD RESIDENCES TRAFFIC NOISE IMPACT
ABATEMENT ANALYSIS dB(A) L_{eq}
(“Half-Box” Property Enclosure)

<u>FREEWAY ALIGNMENT ALTERNATIVES</u>					
North Alignment:		Barrier Height -----			
<u>Receiver</u>	<u>No Barrier</u>	1.8m (6')	2.4m (8')	3.0m (10')	3.7m (12')
“Church”	80	73 ¹	70	67 ²	65
S. House	73	73	72	66 ^{1,2}	64
2-Story	68	68	64 ²	60 ¹	58
Central & South Alignments:					
“Church”	79	77	74 ¹	70	68
S. House	74	73	73	67 ¹	65 ²
2-Story	70	68	64 ^{1,2}	61	59
<u>TOLLWAY ALIGNMENT ALTERNATIVES</u>					
North Alignment:		Barrier Height -----			
<u>Receiver</u>	<u>No Barrier</u>	1.8m (6')	2.4m (8')	3.0m (10')	3.7m (12')
S. House	73	72	72	66 ^{1,2}	64
2-Story	68	68	64 ²	60 ¹	57
Central & South Alignments:					
S. House	74	73	72	67 ^{1,2}	65
2-Story	70	68	64 ^{1,2}	61	58
	67	65	61 ²	58	55

¹ = meets 5 dB(A) benefit criterion

² = meets 5 dB(A) benefit criterion, and attains Category B NAC

³ = no impact, no abatement required

4.16 AIR QUALITY

Implementation of the proposed project would not exceed air quality standards for any of the alignment alternatives. The level and nature of projected air quality effects present negligible differences for all alignment alternatives. Under the No Project Alternative, Route 905 would not be completed and all projected traffic would be shifted onto Otay Mesa Road.

Air Quality Conformity Planning

The federal Clean Air Act (CAA) forms the basis for the national air pollution control effort. A basic element of the CAA is the National Ambient Air Quality Standards (NAAQS), which require that certain pollutants do not exceed specified levels. The threshold for each pollutant ensures protection for sensitive groups of the population. California has adopted state air quality

standards that are more protective than the NAAQS. Areas with levels that exceed the standard for specified pollutants are designated as "non-attainment areas."

The federal CAA requires each state containing non-attainment areas to submit a State Implementation Plan (SIP) to the federal Environmental Protection Agency (EPA), specifying measures to be taken to attain the NAAQS by a specified attainment deadline. The San Diego County Air Pollution Control District (APCD) prepares the San Diego portion of the California SIP.

The 1982 SIP anticipated attaining federal ozone and carbon monoxide standards by 1987. However, these standards were not attained at that time. A lack of congressional action to reauthorize the federal CAA served as the impetus for the California Legislature to address the state's continuing effort to improve air quality. In 1988, the California Clean Air Act (CCAA) was enacted requiring the APCD to prepare a revised Regional Air Quality Strategy (RAQS) for achieving the state and federal air quality standards.

The proposed project would be located in the San Diego Air Basin. Progress has been made in the San Diego Air Basin in attaining federal and state air quality standards. Federal and state standards have been met for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide (CO), and federal standards are being met for inhalable particulates labeled as PM₁₀. State standards for PM₁₀ have not been met and the possible addition of a PM_{2.5} standard may change the Air Basin's federal status as it relates to inhalable particulates.

Currently, the San Diego Air Basin is classified as a "serious" ozone non-attainment area under both the state and federal Clean Air Acts. The non-attainment classification, based on the amount of pollutant above the one hour standard, determines the minimum state and federal control requirements and the federal attainment deadline for the San Diego Region. The current federal one-hour standard for ozone may soon be altered to an eight hour standard. If this occurs there should be no change in the Air Basin's ozone classification.

In order to protect the progress the region has made in achieving air quality standards, a conformity analysis on the proposed alternatives was required. This assessment encompassed conformity evaluation guidelines published by the EPA and concluded that all applicable standards have been met by the proposed project.

Meeting air quality conformity standards, according to the budgets contained within the SIP, means that there will be no significant exceedances of vehicular emissions, which include reactive organic gases (ROG) and nitrogen oxides (NO_x). These compounds are precursors to regional smog (ozone) formation. The proposed project is not anticipated to measurably worsen regional ozone levels. According to the analysis protocols used, the proposed project is not predicted to cause CO "hot spots".

The proposed project is included in the San Diego Association of Governments (SANDAG) 2020 Regional Transportation Plan (RTP). To meet air quality conformity the proposed project must be programmed in the RTP. Additionally, the proposed project is included in the SANDAG 2000/2001 Federal Transportation Improvement Plan (FTIP), which is included in its entirety into the State Transportation Improvement Plan (STIP). The conformity determinations were made by SANDAG on February 25, 2000. FHWA and FTA issued a conformity finding on SANDAG's FY 2000/ 2001 FTIP on October 6, 2000. Additionally the proposed project is

authorized for federal funding through the Federal Statewide Transportation Improvement Program (FSTIP). The proposed project has been included in all regional transportation plans, and there has been no change in design or scope since the adoption of these plans. Both the RTP and FTIP are required to be financially constrained and must be within air quality budgets contained in the SIP.

This proposed project fully conforms to the implementation plan's purpose of attaining and maintaining national ambient air quality standards. The proposed project meets all criteria for a finding of conformity with the SIP.

Existing Air Quality Data

Existing air quality can best be characterized from measurements made at the monitoring station on Otay Mesa. However, this station does not measure the complete spectrum of particulate pollutants and was therefore supplemented with data from the downtown San Diego monitoring station, specifically for PM₁₀ data resources.

The western portion of the project area is closer to the monitoring station in Chula Vista than the Otay Mesa monitoring station near the POE. The Chula Vista site is less affected by nearby truck traffic than the Otay Mesa site, since it better reflects the overall regional background air pollution levels, particularly for CO. Background CO levels in the project area are therefore assumed to be characterized by a combination of the Chula Vista and Otay Mesa stations data resources. The last seven years of monitoring data from the Otay Mesa station, including appropriate supplemental data resources, has shown progress toward cleaner air in almost all categories. The only federal clean air standard exceeded throughout the 7-year monitoring period was the hourly ozone standard, which was exceeded six times in seven years (once per year is allowable). The more stringent state standards for ozone and for PM₁₀ were exceeded on a somewhat higher frequency. Violations of state ozone standards occur on about 13 days per year. The California PM₁₀ standard is exceeded on approximately one-fourth of all measurement days. There are no intersections or other transportation facilities identified in the San Diego County PM₁₀ SIP where violations have been monitored. However, overall air quality on Otay Mesa is generally good in comparison to other areas of the San Diego Air Basin.

Ozone levels in San Diego County are sometimes derived from the southward drift of pollution from the South Coast Air Basin (SCAB). The SCAB, which includes Los Angeles, is forecast to continue to exceed ozone standards to the year 2010. Further ambient air quality improvements from San Diego-generated emissions reductions are anticipated to continue. Any violations of ozone standards in the year 2000 or beyond are forecast to occur only on days when transport from the SCAB creates substantially elevated baseline levels which would be added to local basin levels.

Background CO concentrations in the project vicinity were determined from the second highest one-hour CO concentrations measured at the Otay Mesa and/or Chula Vista monitoring stations. The second highest one-hour CO level at Otay Mesa within the last three years, observed in 1996, was 10 ppm (parts per million), which is representative of receptors near the Otay Mesa POE. The second highest one-hour CO level at Chula Vista was 6 ppm. This level was assumed to be representative of receptors at the western end of the Study Corridor.

Methodology: Microscale Impact Analysis

Microscale air quality was analyzed at a limited number of existing and planned sensitive receptors on Otay Mesa. There are limited existing locations that are considered sensitive receptors within the project area. Approximately eight residences are located in a mixed agricultural, industrial and residential area along Cactus Road. One additional residential site is located along the south side of Otay Mesa Road between Old Otay Mesa and Heritage roads. Planned (future) sensitive receptors within the project area include residences, health care facilities, schools and parks. Sample analysis locations for these future uses were selected, because the exact receptor locations have not been identified. A total of eleven receptor locations were included in the microscale impact analysis; they are shown on [Figure 4-38](#).

Traffic Estimates

Traffic volumes and the vehicle mix (the type of vehicles on the highway) are vital factors/inputs in the computer models used to estimate emissions from a highway project. The most recent Otay Mesa Road vehicle counts show a medium and heavy truck usage of 16 percent. The future growth of employment-related automobiles is forecast to exceed the rate of truck growth, with a lowering in truck percentage. The assumed vehicle mix was derived from a vehicle survey for northbound traffic conducted at the Otay Mesa POE in 1993. Estimates of traffic volumes and vehicle mix were made for the design year (2020).

Air Quality Modeling

Emission factors were calculated using the EMFAC7F (V1.1) computer model. The CALINE4 model was used to predict microscale CO exposures at the eleven receptor sites. Hourly CO calculations were made for worst-case meteorological conditions with the model allowed to determine the wind direction that maximizes the predicted impact. Table 4-15 summarizes the inputs used for emissions modeling such as “average additional” versus the “average existing” vehicle volumes for the proposed project.

Table 4-16
TRAFFIC / EMISSIONS INPUT DATA SUMMARY

<u>Scenario</u>	<u>Avg. Added Vol.</u> <u>(Veh/Hour/Km)</u>	<u>Avg. Base Vol.</u> <u>(Veh/Hour)</u>	<u>Cold</u> <u>Start</u> [*]	<u>Hot</u> <u>Start</u> [*]	<u>EMFAC</u> <u>(gr/km)</u> ^{**}
Existing N-S Arterials	-----	-----	95%	5%	19.6
2000 N-S Arterials	-----	-----	95%	5%	16.4
2020 N-S Arterials	-----	-----	95%	5%	5.5
Existing Otay Mesa Road (OMR)	48	2,670	2.5%	0.5%	2.0
2000 OMR 6-lane Freeway	164	889	28.8%	5.8%	6.8
2000 6-lane Freeway	234	5,223	6.9%	1.4%	3.1
2020 6-lane Freeway	422	8,976	8.0%	1.6%	1.6
2020 6-lane Tollway	386	7,358	8.5%	1.7%	1.6
2020 No Project	591	4,397	19.6%	3.9%	2.3
2020 Buildout	615	12,122	8.7%	1.8%	1.6

* $CS = \frac{1.373 \times \text{Added}}{\text{Base}}$ $HS = 0.2 \times CS$

** Converted to gram/km from gram/mile output from the EMFAC7F1.1 computer model.

Vehicle speed assumptions were as follows:

N-S Arterials = 40 kph (25 mph), Expressway Stage 80 kph (50 mph), Free/Tollway = 97 kph (60 mph), Otay Mesa Road (Existing) = 88 kph (45 mph), Otay Mesa Road (2000, 2020 No Project) = 40 kph

Results of Analysis

Microscale air pollution exposure at the selected Otay Mesa receptor sites for all alignment alternatives, as characterized by future carbon monoxide (CO) levels, range between approximately 7 and 13 ppm (parts per million) for 1-hour CO levels, and 4.1 to 7.6 ppm for 8-hour CO levels. These levels are within the acceptable CO concentrations for state, federal and Occupational Safety and Health Administration (OSHA) standards. These standards are: 20 ppm (state) and 35 ppm (federal) for the 1-hour average, 9 ppm (state and federal) for the 8-hour average and 50 ppm (OSHA) over an 8-hour workday for commercial sites.

One-hour CO concentrations were calculated for 10 scenarios. Table 4-16 summarizes the one-hour CO impact analysis for all alignment alternatives, and Table 4-17 summarizes the eight-hour CO impact analysis. Predicted future CO levels for all alignment alternatives are similarly well below the state and/or federal Ambient Air Quality Standards (AAQS). Inclusion of a major bridge component in the South Alignment Alternative created no measurable change in air quality impacts from the at-grade assumptions of the North and Central Alignment Alternatives.

Differences in microscale air quality among the alignment alternatives were negligible, with 8-hour CO levels within 0.1-0.2 ppm, and 1-hour CO levels within 1.0 ppm for all identified alignment alternatives. Differences among the alignment alternatives are well below reportable

amounts, and within applicable regulatory standards. The no project alternative would result in severe congestion on Otay Mesa Road and less pollution-efficient travel speeds.

A qualitative analysis was performed for the alignment alternatives effect on existing and new PM10 violations at a microscale level. Given the alignment alternatives characteristics and that the project is not directly upwind from the Otay Mesa- Paseo International monitoring station as well as project measures to attain the PM10 standard no new violations are anticipated. This analysis demonstrates that the project will not cause or contribute to any new localized PM10 violations or increase the frequency or severity of any existing PM10 violations

Conclusions and Measures to Minimize Harm

The air quality impacts of the proposed project are not substantial. Since the project would be in regional conformance, there are no CO exceedences, and no new PM10 violations no long term mitigation measures are proposed.

Table 4-17
MICROSCALE ALIGNMENT ALTERNATIVE IMPACT ANALYSIS SUMMARY
(One-Hour CO Concentrations [ppm])*

Receptor Site No.	-1998-	----- 2020 -----				
	<u>Exist.</u>	<u>Fwy. North</u>	<u>Fwy. Cen</u>	<u>Fwy. South</u>	<u>Tllwy.</u>	<u>No Proj.</u>
1	9	10	10	10	10	10
2	9	9	9	9	9	10
3**	12	12	12	12	12	15
4	9	8	8	8	8	10
5	10	11	11	11	11	11
6	7	7	7	7	7	7
7	7	7	7	7	7	7
8	7	7	7	7	7	7
9	7	7	7	7	7	7
10	7	7	7	7	7	7
11	7	7	7	7	7	7

Site 1 = nearest residence on Cactus Road N of Route 905

Site 2 = nearest residence on Cactus Road S of Route 905

Site 3 = AM/PM Market; Heritage @ Otay Mesa Road (OMR)

Site 4 = nearest residence on OMR W of Heritage Road

Site 5 = POE

Site 6 = California Terraces school/park site W of Palm Avenue

Site 7 = Remington Hills residential site

Site 8 = California Terraces school/park site E of Palm Avenue

Site 9 = Santee Investments community park site

Site 10 = Santee Investments high school site

Site 11 = California Terraces single-family residence site

*All “with project” calculations, except for the 2020 6-lane Freeway, were calculated for the Central Alignment Alternative because no measurable CO differences were observed among candidate alignment alternatives.

Background CO levels (1-hour) for Receptor 5 = 10 ppm, Receptor 1, 2 = 8 ppm, all others = 6 ppm.

** This location is a commercial site where the OSHA standard of 50 ppm for an 8-hour workday would apply.

Source: CALINE4 Model, results in Air Quality Technical Study.

Table 4-18
MICROSCALE ALIGNMENT ALTERNATIVE IMPACT ANALYSIS SUMMARY*
(Eight-Hour CO Concentrations [ppm])

Receptor No.	-1998-	----- 2020 -----				
	<u>Exist.</u>	<u>Fwy. North</u>	<u>Fwy. Cen</u>	<u>Fwy. South</u>	<u>Tllwy.</u>	<u>No Proj.</u>
1	5.6	5.8	5.8	5.7	5.7	5.8
2	5.5	5.6	5.6	5.6	5.6	5.8
3**	7.3	7.1	7.1	7.1	7.2	9.2
4	5.5	4.9	4.9	4.9	4.9	6.1
5	6.2	6.5	6.5	6.5	6.5	6.5
6	4.0	4.3	4.3	4.3	4.2	4.3
7	4.0	4.2	4.2	4.2	4.1	4.3
8	4.1	4.1	4.1	4.1	4.1	4.4
9	4.0	4.2	4.2	4.3	4.2	4.2
10	4.0	4.2	4.2	4.2	4.1	4.2
11	4.0	4.2	4.2	4.2	4.1	4.3

Site 1 = nearest residence on Cactus Road N of Route 905

Site 2 = nearest residence on Cactus Road S of Route 905

Site 3 = AM/PM Market; Heritage Road @ Otay Mesa Road (OMR)

Site 4 = nearest residence on OMR W of Heritage Road

Site 5 = POE

Site 6 = California Terraces school/park site W of Palm Avenue

Site 7 = Remington Hills residential site

Site 8 = California Terraces school/park site E of Palm Avenue

Site 9 = Santee Investments community park site

Site 10 = Santee Investments high school site

Site 11 = California Terraces single-family residence site

* All "with project" calculations, except for the 2020 6-lane freeway, were calculated for the Central Alignment Alternative because no measurable CO differences were observed between the North, Central and South Alignment Alternatives. Persistence Factor = 0.6; Ambient Air Quality Standard = 9 ppm.

** This location is a commercial site where the OSHA standard of 50 ppm for an 8-hour workday would apply.

Source: CALINE4 Model; results in Air Quality Technical Study.

4.17 INVASIVE SPECIES

On February 3, 1999, President Clinton signed Executive Order 13112 requiring Federal agency action to combat the introduction or spread of invasive species in the United States. Federal Highway Administration guidance issued August 10, 1999 directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project. None of the species on the California list of noxious weeds is currently used by Caltrans in San Diego for erosion control or landscaping. The landscaping and erosion control for Route 905 will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions may be taken if invasive species are found in or adjacent to the construction areas. These may include the inspection and cleaning of construction equipment

and eradication strategies to be deployed should an invasion occur. No adverse impacts to sensitive habitat areas are anticipated as a result of the project.

4.18 CONSTRUCTION IMPACTS

Construction activities cause temporary impacts with respect to air quality, noise levels, erosion, and access or traffic circulation. These impacts are not considered substantial. The proposed project would interfere with local traffic causing some delays and occasionally disrupting access. Olay Mesa Road would not be closed; detours would ensure traffic would continue to flow. Fire and safety service providers, and local businesses would therefore not experience substantial impacts. Construction impacts and mitigations measures are discussed in detail above, under each appropriate environmental topic. Despite the duration of the construction period (approximately 12 to 18 months), and noise impacts in certain areas, the overall impact would not be substantial, due to the small number of sensitive receptors near the construction zone. A summary of construction mitigation measures appears below.

Air Quality

Temporary impacts would result from construction activities. Air pollutants would be emitted by construction equipment and dust would be generated during grading and site preparation. PM_{10} is the pollutant of primary concern associated with construction activities. Construction activities for large development projects are estimated by the Environmental Protection Agency to add 1100 kilograms (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Contractors complying with Caltrans *Standard Specifications* are required to comply with all air pollution control rules including practices for minimizing dust generation.

Short term construction impacts would be mitigated through compliance with Caltrans Standard Specifications and use of measures such as standard application of water and soil binders to the site, roads and parking areas, washing of equipment as necessary, proper tuning and maintenance of equipment, and use of low sulfur fuel for equipment.

Mitigation Measures

Air Quality

- Compliance with Caltrans' Standard Specifications - Section 10 "Dust Control".
- Compliance with Caltrans' Standard Specifications regarding air pollution control.
- Apply water to site and equipment as frequently as necessary to control dust.
- Spread soil binders on site, unpaved roads, and parking areas.
- Wash off trucks / equipment before leaving the site, as necessary.
- Properly tune and maintain equipment.
- Use low-sulfur fuel for equipment.

Noise

- Proposed noise barriers will be constructed as a first order of work within designated abatement areas adjacent to sensitive receptors, where feasible. If not feasible as first order of work, construct temporary barriers until such time that proposed barriers can be constructed.

Water Quality

- Compliance with Caltrans' Standard Specifications, and NPDES permit.
- Use of Best Management Practices to minimize erosion and sedimentation.

Traffic Circulation and Access

- Phase construction.
- Preparation of a traffic management plan, which ensures that clearly identifiable access to and from homes and businesses will be retained.
- Regional circulation will be maintained and local circulation will be accommodated via detours.
- A public awareness program will be developed to inform the public of the upcoming detours and construction schedule.
- Emergency providers (fire, police, and medical) will be informed of all detours. Pedestrian and bicycle access will be maintained.
- Construction signage, signalization, or flag-persons will be used during construction in areas with pedestrian access.

4.19 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Project implementation would result in attainment of short-term and long-term transportation and economic objectives at the expense of some long-term aesthetic, biological, noise, and other land use impacts. Transportation improvements are based on State/ local comprehensive planning which considers the need for present and future traffic requirements within the context of present and future land use development. The local short-term impacts and use of resources by the proposed project is consistent with the maintenance and enhancement of long-term productivity for the local area, and the State as whole.

Build Alignment Alternatives

The six build alignment alternatives, Freeway and Tollway - North, Central, and South Alignment Alternatives would have similar short- and long-term effects.

Short-term losses include:

- Economic losses experienced by businesses affected by relocation, and
- Construction impacts such as noise, traffic delays or detours.

Short-term benefits include:

- Increased jobs and revenue generated during construction.

Long-term losses would include:

- Permanent loss of plant and wildlife resources,
- Loss of open space and farmland,
- Visual impacts,
- Noise increases, and
- Use of construction materials and energy.

Long-term gains include:

- Improvement of the transportation network of the region and the project vicinity, increased access,
- Reduction of congestion on local streets and highways,
- Use of private funds to construct a public facility (for the Tollway Alternative only),
- More expeditious project delivery (Tollway Alternative only) through use of private funds,
- Increased jobs and revenue through creation of new toll operation industry (Tollway Alternative only), and
- Support approved development.

No Project

This alternative would offer none of the gains listed above, nor would it have any of the losses. It would, however, not resolve worsening congestion on local streets and highways. It would not support planned development.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. However, it would be extremely expensive, and examples are rare. At present, there is no reason to believe such a conversion would ever occur.

In addition, losses of wildlife habitat and vernal pools are considered an irreversible loss. Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material are expended. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources in the foreseeable future.

Also, public funds would be expended (approximately \$262 to \$277 million for the Freeway Alignment Alternatives). Public funds are not considered retrievable. The commitment of these resources is based on the concept that residents in the area, region, and State would benefit by the improved quality of the transportation system. These benefits would consist of improved accessibility and safety, savings in time, and greater availability of quality services. These benefits are anticipated to outweigh the commitment/ loss of the resources.

The No Project alternative would not result in any irreversible or irretrievable commitment of resources.

4.21 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Build Alignment Alternatives

Adverse effects would include those to displaced residents and businesses, visual quality, noise levels, open space/ farmland, biological resources, growth impacts, and temporary construction effects. To the maximum extent possible, mitigation measures are incorporated into the project to minimize impacts. Substantial unavoidable environmental effects are impacts to vernal pools, and the secondary impacts of growth.

No Project Alternative

The No Project Alternative would result in worsening traffic congestion on the local and regional transportation system. Potential safety issues may occur in the future within the Otay Mesa area since Otay Mesa Road is the only access to Otay Mesa and the Port of Entry.

4.22 CUMULATIVE IMPACTS

Introduction

The CEQA Guidelines define cumulative impacts as “two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines § 15355). A cumulative impacts analysis must include either (1) a list of past, present, and reasonably anticipated future projects, or (2) a summary of projections contained in adopted plans designed to evaluate regional or area-wide conditions.

NEPA also requires consideration of cumulative impacts (40 CFR § 1508.25(c)). The CEQ regulations define cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR § 1508.7).

Projections associated with general plans covering the area, and the SANDAG Series 8 growth projections, are described in the relevant local and regional planning documents. Local and regional plans associated with the project study area are discussed in Chapter Three. A number

of large development projects, in various stages of approval, lie entirely or partially within the study area, and account for large amounts of undeveloped land. Proposed and reasonably anticipated future development projects, as well as transportation projects, are listed in Appendix C, Tables C-1 and C-2. Since the available land in the area is governed by these proposed or approved development plans, the cumulative impacts of such development, in conjunction with the effects of Route 905, comprise the cumulative impacts related to the project.

Although the study area is the portion of the County most closely associated with the project and so most appropriate for consideration of cumulative impacts, cumulative impacts throughout San Diego County have also been evaluated. Mitigation for cumulative impacts at the county-wide level are most effectively provided by county-wide planning, including the MSCP and other regional planning efforts. Planned development and transportation projects in the San Diego area have been evaluated for their cumulative significance; cumulative impacts of these planned and reasonably-anticipated future projects are discussed above in this chapter, where relevant, for each environmental topic.

The only impacts of the Route 905 project which have been determined to occur, regardless of mitigation, are impacts to vernal pools and their associated endangered/ threatened species, and the secondary impacts of growth. Cumulative impacts to vernal pools and their associated species from development have been and will continue to be adverse. Mitigation measures will consist of acquisition and preservation of existing pools, creation, and/or enhancement of vernal pools. It is acknowledged that the vernal pool creation has been successful, however, the long-term effectiveness of vernal pool mitigation through the creation of new pools is variable. The proposed project would have long-term secondary growth effects in the Otay Mesa area. The project may also stimulate growth not currently planned both through intensified uses within and adjacent to the project corridor, and by allowing greater access to potentially expanding industrial and international trade uses. The environmental effects of such speculative projects are not currently foreseeable and cannot be addressed in this analysis.

Analysis of Additional Projects in the Study Corridor

This environmental document presents all available information with regard to the potential environmental effects of adjacent development projects, by summarizing the information presented in the environmental impact reports prepared for these projects. The review of the adjacent development environmental documents has not identified any project's contingent upon the completion of Route 905. Appendix C, Table C-3, describes the cumulative impacts of major development projects within the Route 905 Study Corridor, and identifies the relevant Environmental Impact Reports and other environmental documents which describe these effects in more detail.

In addition to the projects presented in Appendix C, Route 125 South is a related project, because Route 905 would include a freeway to freeway interchange at the connection to 125 South. Since the Route 125 South project is being developed on an earlier schedule than Route 905, the interchange between the two facilities is included in the Route 905 project with the appropriate mitigations to fully address its impacts. The Route 905 project is independent of the Route 125 South project, and neither the proposed interchange nor the Route 125 South project are essential elements of the proposed Route 905 project. Route 905 could be constructed and have independent merit without Route 125 South. Each of these proposed projects has independent

utility and is being developed on individual planning schedules. The processing of these projects is consistent with CEQA and the FHWA NEPA regulations.

The Route 905 Study Corridor has also been evaluated as part of the analysis of the MSCP and MHPA. The MSCP/ MHPA is discussed in this document ([Section 3.6.2](#) and [Section 4.10.1](#)) with regard to biological impacts. The MSCP planning process began in 1991, and involved extensive and ongoing interagency and public discussion, culminating in approval of the MSCP by the FWS in 1997. The MSCP was designed to provide a comprehensive habitat conservation planning program for southwestern San Diego County. It is specifically intended to allow local jurisdictions to maintain land use flexibility, by creating a regional preserve system that can meet future public and private project mitigation needs. In particular, “by identifying priority areas for conservation and other areas for future development, the MSCP will facilitate and improve certainty of development outside the preserve area (Final MSCP, August 1998, page 1-4.). In this way, the MSCP serves to create effective urban growth boundaries in the Route 905 area, by defining areas, which will be preserved, and areas available for development.

The EIS for the MSCP encompasses a study area of approximately 235,726 hectares (582,243 acres) or approximately 2400 square kilometers (909 square miles) in southwest San Diego County, including but not limited too, Chula Vista, Coronado, Imperial Beach, La Mesa, Lemon Grove, San Diego. The MSCP study area contains much of the current or proposed urbanization in the southern San Diego County area, and encompasses large portions of the Route 905 project area. Focusing on the establishment of a large scale preserve for conservation of biological resources, the MSCP also provides for allowing development outside the preserve area which will be mitigated by conservation inside the preserve. By establishing areas, which are off limits for development, and authorizing development to proceed, the MSCP, and the development contemplated under the MSCP and MSCP EIS, provide additional demonstration that the growth associated with the related projects, listed in Appendix C, in the Route 905 project area has been addressed on a regional basis.

Growth

Route 905, in conjunction with the construction of Route 125 South, the widening of Otay Mesa Road, and other smaller local transportation improvements, would contribute cumulatively to substantial secondary growth impacts to the southeast portion of San Diego County. The construction of these projects would also enhance development opportunities in the south county area by providing improved access within the regional and international transportation system. The resulting growth would benefit regional employment.

Mitigation for cumulative growth impacts is governed by each of the three local land use plans, which provide for the orderly, timely and environmentally sensitive nature of land use development. Additional infrastructure and public service needs resulting from future developments will be the responsibility of developers as directed by local agencies and utility districts. No measures are proposed for this project to mitigate growth impacts.

The majority of the project area has been committed to approved land uses. The document acknowledges anticipated growth which is expected to occur in the area, and addresses the cumulative impacts in Appendix C.

As indicated in Chapter 4, [Section 4.8.2](#), most of the Route 905 project area is already subject to proposed or approved development plans, or designated for open space preservation as part of the MSCP/ MHPA. As a result, the reasonably foreseeable development in the project area is described in this document by reference to the environmental documentation prepared for these development projects. These specific environmental documents are summarized in Appendix C. Appendix C, Table C-3, summarizes the size and general status of the projects anticipated in the project area, and also specifically identifies the extent of biological impacts anticipated for each of these projects. Biological resource impacts identified include endangered species, habitats, wetlands, waters of the U.S., air quality, and water quality when information was available from the project EIR's.

Unplanned Growth

The Route 905 project is expected to affect growth by accommodating planned and approved development, and by expanding access to development areas including new and improved access to previously undeveloped land. The project is expected to have effects on the rate of growth on the short term and on the location and total amount of growth over the long term. The growth inducing effects of the project, however, are minimized by the local and regional land use plans in the project area, including the MSCP/ MHPA approved by the FWS and the CDFG and being implemented by local jurisdictions in the project area. This large-scale subregional habitat conservation plan effectively limits the areas which may be subject to growth pressure, by setting aside substantial habitat reserve areas and specifically identifying areas where development is allowed in accordance with the state and federal endangered species act.

Other constraints to growth include the future availability of developable land. In general, lands in floodplains, with steep slopes, or in public ownership are constrained from urban development. Growth is also constrained in areas of rare, endangered, or sensitive biological resources. Several single and multiple species habitat conservation planning efforts are underway in the growth analysis study area (e.g. Natural Community Conservation Program, Otay Corporate Center South Preserve Area). In general, the goal of these efforts is to preserve sensitive resources and connecting corridors to avoid fragmentation of habitat and thereby maintain its long-term viability. Most prominent of these efforts is the project area is the MSCP/ MHPA.

Paleontological Resources

The eventual buildout of residential and commercial development in the Otay Mesa area could potentially remove (during mass excavation) or cover over (during construction) a majority of the paleontological resources discussed in this report. The project mitigation measures described in [Section 4.2](#) would mitigate the cumulative impacts associated with the proposed project. The City and County of San Diego would likely impose similar mitigation requirements for future cumulative development projects on Otay Mesa.

Hydrology/ Hydraulics

As described in [Section 4.3](#), all of the project alignment alternatives (except No Project) would result in potentially adverse impacts from storm water runoff along proposed Route 905 due to increased flows and runoff volumes. All these potential impacts would be effectively mitigated on a project level through standard design and construction measures. Accordingly, the project would result in the discharge of storm water runoff rates and volumes equivalent to those currently experienced.

Additional developments in the Otay Mesa area, including numerous large-scale industrial/commercial sites, will each require similar measures to maintain the current flow levels. Mitigation of potentially adverse cumulative water impacts entail adequate project-specific mitigation for individual development actions, as well as the implementation of region-wide measures to avoid or reduce discharge to Mexico. With increased development, most storm runoff is conveyed in pipes or channels. This shortens the travel time it takes for flows from the further basins to reach this same basin. The resultant peak under developed conditions typically is larger. A regional detention facility would account for this increase peak flow, and mitigate the increase, before releasing it into Mexico. The design and implementation of such programs would require participation and funding by numerous agencies and private entities to be effective, and is not a proposed mitigation requirement for this project.

Water Quality

Potential for cumulative effects would result from the continued addition of developments in the Otay Mesa area, with potential for contaminant discharge related to construction and operation. Project-specific mitigation measures for each individual development action are required by local agencies with jurisdiction over land-use decisions, as well as by the RWQCB. Erosion-control programs and retention/ detention basins to catch and treat runoff are commonly used to ensure conformance with the Basin Plan and other applicable standards. These measures would mitigate cumulative impacts. Region-wide measures to address cumulative impacts are beyond the scope of this project; they would involve implementing applicable programs in the Basin Plan, such as source reduction, increased contaminant removal and monitoring and conformance with water quality objectives.

Air Quality

The air quality study was conducted for the proposed project in compliance with applicable federal regulations including the provisions of 40 CFR 93.110. The regional emissions analysis conducted by SANDAG addresses the regional effects of both ozone and CO.

The region's most current model (Series 8 land use) was used to perform a thorough examination of air quality impacts. The proposed project is included in the SANDAG 2000/2001 Federal Transportation Improvement Plan (FTIP), which is included in its entirety into the State Transportation Improvement Plan (STIP). The conformity determinations were made by SANDAG on February 25, 2000. FHWA and FTA issued a conformity finding on SANDAG's FY 2000/ 2001 FTIP on October 6, 2000.

According to the 2020 RTP, air quality has been improving in the San Diego Region and is expected to continue to improve in the next 20 years. The 2000 RTIP includes Route 905 as a

six-lane freeway. The 2020 RTP includes Route 905 as an initial six-lane facility with future upgrading to eight lanes plus two HOV lanes. Both the RTP and the RTIP have been found to conform with the State Implementation Plan (SIP) as required by Section 176 of the Clean Air Act. The Project “comes from” a conforming transportation plan and transportation program as required by Section 176 of the Clean Air Act.

The cumulative impacts of planned developments were considered in both the regional emissions analysis performed by SANDAG on the RTP as well as localized CO analysis contained in this document. Both analyses’ use SANDAG’s Series 8 land use and traffic demand projections. The Series 8 projections did include the planned land use development expected in the project area by 2015 including, but not limited to, Brown Field (City of San Diego) and East Otay Mesa Specific Plan (County of San Diego) projects. It should be noted that Route 905 would not itself be a traffic generator. It will help relieve existing and future traffic generated by previously approved and planned development, by reducing out of direction travel and diverting stop and go traffic from local streets and arterials. The air quality study shows that the proposed project would improve regional air quality as compared to the no build alternative.

The proposed project will not exacerbate increases in traffic. On the contrary, the project is part of a comprehensive regional transportation network designed to serve the growing South San Diego County population in accordance with the development plans of the local jurisdictions. Increases in traffic generation and vehicle emissions due to developments are consistent with SANDAG’s traffic projections and air quality models used in this document. The population increases were included in the Series 8 growth projections.

Farmland

The construction of Route 905, in conjunction with other road projects and the numerous developments proceeding in accordance with adopted plans, would result in cumulative impacts on farmland. Without development of Route 905, the cumulative loss of farmland would be substantially less on Otay Mesa relative to the losses incurred under any of the alignment alternatives. The project mitigation measures described in [Section 4.6.4](#) would mitigate the cumulative impacts associated with the project.

Economics

There is a potential for cumulative economic impacts due to the anticipated business displacements for Route 905, as well as other projects in the vicinity. Construction of the Route 125 project could coincide with Route 905, and could include displacement of 3 to 4 businesses. Given the small number of displacements and the different types of businesses with assumed different relocation needs, cumulative impacts are expected to be minor.

Visual

The visual character of the Otay Mesa area is such that it can absorb new development without negatively affecting the visual environment. For view quality impacts, only effects on a viewing scene can be considered as impacts on view quality. Since none of the project area is considered to be part of an important viewing scene, no cumulative effects are expected. Neither are cumulative community character effects expected, because there are no definitions of community resources or design goals expressed in any community plans or policies addressing Otay Mesa.

Some of the many planned projects listed in Appendix C are likely to adversely affect the landform in the project area and, along with Route 905, may cumulatively turn a slightly or moderately adverse effect into one that is adverse. Implementation of the proposed Route 905 project would contribute to a potentially adverse cumulative landform quality impact when the slight and moderate contrasts of the Route 905 project are combined with adjacent developments.

Mitigation measures for the Route 905 project are discussed in [Section 4.9.3](#). A long-term mitigation and overall corridor plan will be developed to deal with appropriate planting, grading and specific design elements such as walls, structures and signs. Mitigation of transportation projects can be coordinated by Caltrans, but private development projects cannot. Caltrans is not in a position to control or mandate adjacent landform mitigation on private property. Mitigation for the visual impacts of adjacent private development projects through the City of San Diego CEQA compliance process would help to reduce the cumulative impact on landform quality.

Biological Resources

Cumulative biology impacts on Otay Mesa are associated with past, current and reasonably foreseeable future developments and other uses of the land such as agriculture. The cumulative impacts that have already occurred on Otay Mesa are potentially substantial. Disturbed, developed and agricultural areas account for 79 percent of the Study Corridor. Since one objective of the Route 905 design is to minimize biological resource impacts, the proposed alignment alternatives primarily pass through areas with heavy disturbance.

Based on the Otay Mesa Community Plan, East Otay Mesa Specific Plan and Regional Transportation Plan, most of the mesa is planned for residential, commercial, and industrial development, including associated roadways and other infrastructure. Much of Otay Mesa that is proposed for development is disturbed or partially developed. Regardless, the mesa still contains sensitive biological resources (e.g., vernal pools, wetlands, etc.). Implementation of the Route 905 project, together with local land use and transportation plans (including specific approved and proposed developments), would add to the cumulative impacts on sensitive biological resources of Otay Mesa.

The MSCP was implemented as a regional program to preserve land for biological purposes while maintaining and fostering sensitive flora and fauna. On Otay Mesa, the MSCP preserves these resources within the vicinity of Spring and Dennery canyons and along southern slopes of the Otay River Valley. Under the MSCP program, 365.4 hectares (903 acres) of land originally designated for urban development in the Otay Mesa Community Plan have been identified for habitat preservation, enhancement or restoration. The mechanism of the MSCP is to allow development in certain areas while creating a linked preserve system through development mitigation requirements. Specific management measures, designed for each region of the MSCP, are implemented to prevent local extirpation and ultimate extinction of species and mitigate cumulative biology impacts. The mitigation measures recommended for the project in [Section 4.10.2](#) comply with and support the MSCP. These measures, along with the regional approach embodied in the MSCP, would not result in cumulative impacts to biological resources, with one exception. Cumulative impacts to vernal pools and their associated endangered/threatened species would be substantial, despite the proposed mitigation measures for the project and despite the regional measures embodied in the MSCP. Mitigation measures

for vernal pools and their associated species will likely include preservation and/or creation as part of a compensatory mitigation plan.

Aquatic Resources

A description of the types of wetlands and waters directly impacted by the proposed project is provided in [Section 4.10.1](#), the Biological Technical Study Report (April 1999), Errata Addendum to Biological Resources (February 2000 and March 2000).

Wildlife corridors and fragmentation issues are discussed in [Section 4.10.3](#). Given current development plans, future planned open space, potentially fragmented or isolated habitat, and requirement of both local and regional corridors, one potential wildlife linkages (Spring Canyon) was identified in the project area. The proposed project would cross Spring Canyon on either a bridge structure or a culvert with fill depending on the selected alignment alternative. The bridge structure or the fill area will be designed so that wildlife movement in these areas will continue. This area is considered a local wildlife corridor due to the relatively small amount of contiguous habitat south of the proposed highway and other non-contiguous native habitats that are intermixed with dense existing and planned/approved residential and commercial development.

The proposed project would directly impact 0.15 hectares (0.36 acres) of wetlands. The 0.15 hectares (0.36 acres) of direct wetland impacts includes 0.05 hectare (0.13 acre) of vernal pools. Other types of wetlands that would be impacted include freshwater marsh, riparian scrub, disturbed wetland, and open water.

Indirect impacts would occur to vernal pools and listed species, including San Diego fairy shrimp, Riverside fairy shrimp, Otay tarplant, spreading naverretia, San Diego button-celery, and Otay Mesa mint. Several vernal pools supporting these species occur within the Study Corridor. Although one alignment alternative has been designed to avoid direct impacts on these pools and associated species to the extent feasible, indirect impacts are still possible. Indirect impacts include possible impacts from trash and litter, vehicular accidents and related rescue operations, human generated wildfires (e.g., cigarettes and sparks), dust and exhaust emissions, noise, and lighting. However, these effects will be attenuated because the roadway will be below grade in the area adjacent to the vernal pools. The proposed project would directly impact 0.58 hectares (1.31 acres) of jurisdictional Waters of the U.S.

Chapter Four, [Section 4.10.1](#) discusses the impacts to aquatic resources and the presence or absence of associated protected species including planned and potential compensatory mitigation measures. A further detailed discussion is included in the Biological Resources Technical Study Report (April 1999) and the February and March Addendums. As stated in [Section 4.10.2](#), impacts to wetlands, with the exception of vernal pools and their associated endangered and threatened species, would be minimized.

Cultural Resources

Route 905 would not cause substantial cumulative impacts to cultural resources, due to the mitigation and monitoring measures required for Route 905 and for all other projects in the Otay Mesa area.